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The Oldest American Aeronautical Magazine

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International News Reel Photo

VOLUME XX

NUMBER 13

SPECIAL FEATURES

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LAUNCHING AIRPLANES FROM CATAPULTS

ELECTRIC ARC WELDING IN AIRPLANE CONSTRUCTION

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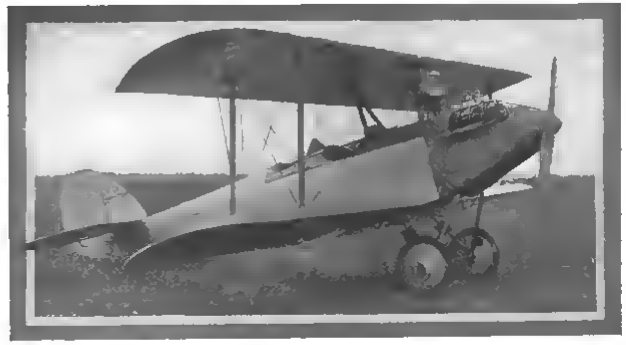

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AVIATION

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Virginius E. Clark
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VOL. XX MARCH 29, 1926 No. 13

Spring Cleaning

ACCORDING TO the calendar, spring is on its way. Spring means a renewal of flying activity all over the country. All winter, pilots and mechanics have been working over their planes, waiting for the spring zephyrs to lure the public out to their flying fields. To the pilot, the condition of his plane and engine is the thing of greatest importance. The public, however, cannot tell what condition the plane is in but they will form judgements from such things as they do know about, that is, the general appearance of the hangar and grounds. If the hangar needs a coat of paint, if there are broken windows, if there is a general muss of oil, grease and dirt around the place, the public will get the impression that the plane is in the same condition.

If passengers are being carried it certainly pays to keep the field as well as the plane in good condition. Besides merely keeping the grounds neat and clean, there are certain facilities which can be maintained on the field which will attract and keep patrons. There are certain locations where a little persuasion would easily attract a good tea room or restaurant to the field, replacing the cheap "hot-dog and pop" stand. All fields would profit by a good rest room and proper comfort stations. Good locker space is a convenience for students. A little thought in the matter of routing and parking automobiles may add greatly to the convenience of such visitors.

Passengers must often be kept waiting. If they are comfortable they will be much less restless. Casual visitors, if they stay around the field long enough, will almost always want to fly sooner or later. Make the place attractive and you will get more business.

Educating the Public

THE TIME is drawing near for the opening of some of the contract air mail routes which have been let to contractors throughout the country. The past few months have been devoted by these operators to the development of organization and the preparation of everything which pertains to the successful carrying out of the services for which contracts have been undertaken.

Among the questions of which every operator will take cognisance is the vastly important problem of developing, in the public mind, an accurate understanding of the possibilities of the service rendered in the furthering of their particular business interests. Air transportation facilities, whether relating to mail, express or passengers, while being of extreme importance to the community, may completely fail to reach their real significance if the best and most advantageous method of putting the service to use is not understood by the parties most concerned. One of the most important features of any air transport organization, therefore, will always be the accurate and careful indicating to the public of the details of the most advantageous manner in which the services available may best be put to use to satisfy particular and individual demands.

In this way not only will the business of the air line thrive as a direct result of the increased patronage, but the public, as a whole, will slowly become increasingly accustomed to air transportation and the result will be a general boom of the air method in every sphere where time is of vital importance.

Giant Flying Boats

THE FLIGHT of the "Gentlemen from Spain" who crossed from Europe to South America has been received by the public with much enthusiasm and accepted as one of the great pioneer flights.

The public though, and quite rightly, has come to regard many pioneer flights as stunts of no practical value and the undiscriminating now see all such flights in this light. The flight of the Portuguese in 1922 over this same route was a stunt, since the plane used had neither the carrying capacity nor the seaworthiness necessary to make the trip anything but a hazardous venture. The flight of the Spaniards was with a plane in which the hazards were considerably less but still the flight could hardly be called a commercial venture.

The flight, however, revives interest in the giant flying boat. Here is a route connecting two continents, where the weather is unusually clement, where the traffic is large and where a saving of at least 10 days can be made by the air method of travel over the sea route. What is needed to make the venture a commercial proposition is a flying boat of at least three times the size of the Dornier Wal. Such a boat would, of necessity, have many engines, thus practically eliminating forced landings. Its size would make it very seaworthy, and, according to theoretical calculations, it could carry a considerable amount of useful load over the distance.

The giant flying boat has many advantages over the giant land plane. The first of these is that it has an unlimited field from which to take off and, provided that it can ultimately break the suction in the take off, the length of the run is immaterial. Once off, it does not need the climb or reserve power necessary for a land plane. There are no mountains to climb over, and, though wind velocities may be greater at sea than over land, there is much less "bad air."

It is to be hoped that the flight of Commander Franco will stimulate the building of larger flying boats which would make such a flight a commercial proposition. The difficulty is in the matter of cost. Compared to the development of dirigibles, however, the financial side would be reasonable.

Curtiss Issues Annual Statement

Curtiss Aeroplane and Motor Co., Inc. Presents Favorable Report of Year With Progress Indicated in All Quarters.

THE ANNUAL meeting of the Stockholders of the Curtiss Aeroplane and Motor Company, Inc., was held on March 16, 1926 At this meeting, C M. Keys, president, made the following financial statement of the operations of the company for the year 1925

The financial results of the operation of this company for the year 1925 are submitted herewith. These results reflected a continuance of the same conservative policy which the company adopted in the Fall of 1923 and has continued up to the present time Funded and other indebtedness have been kept down Inventories have been held under strict control The company has no trade debts and has operated throughout the year on its own working capital and has ample credit available for the carrying on of this current business and any other business now in hand or likely to be secured in the immediate future Net earnings after full depreciation amounted to $156,780 71, derived mostly from Government contracts The directors have declared, for the year, dividends of $6 00 on the preferred stock

During the year the company sold about half of its field at Mineola, New York, without interfering in any way with the operations of the flying service maintained at that point This was in line with the fixed policy which has prevailed for the past five years of liquidating assets not needed in the business The result of the sale will be reflected in an increase of revenue for the year 1926 and subsequent years and in a decrease of operating expenses. Negotiations are under way which may result in the sale of the remainder of this property during the calendar year 1926 The sale of the part of the property disposed of showed a profit and the negotiations concerning the remainder of the field are based upon a profitable bid

Curtiss Holds Speed Honors

During the year the company re entered the building of fast airplanes for competition, the purpose of this re-entry being the development of a new engine and the further development of the pursuit type of airplane The result was the winning of the Pulitzer Race with the establishment of a new World's record for the course and the winning of the Schneider Cup Race for the second time against challengers representing the best ability of Great Britain and Italy, the margin of superiority over the best of the challengers being almost as great as it was in 1923 when Curtiss planes with Curtiss engines won the Schneider Cup at Cowes, England New world records were also established in this seaplane race The year 1925 was the fifth successive year in which the Pulitzer Race was won with Curtiss engines and in all these years, except 1924, the airplane itself was also a Curtiss design.

Another interesting episode of the year was the re-entry of the company into the European market on a fairly substantial scale. The company during the War sold to Great Britain approximately $20,000,000 worth of material It is, therefore, a pleasure to report that Great Britain has again opened a market for the products of the company by the purchase of a substantial number of Curtiss D-12 engines. Several South American Governments are also negotiating for the purchase of this engine which has thus become a very widely known international product.

The year has been an exciting and interesting year in aviation as a whole There has been a widespread public awakening in the United States concerning the uses of aviation both as a means for national defense and as a means for the carrying on of commerce. There has been carried on very exhaustive investigations into aviation by a Committee of Congress, by a special Board appointed by President Coolidge, and by a special Committee under the auspices of the Department of Commerce The work of all these committees has been constructive The people of the country have made it obvious that they desire not only a fairly adequate Air Service for both Army and Navy, but also the building up of commercial aviation throughout the country It now appears likely that legislation along these lines will be enacted by Congress during the current session Whether such legislation is enacted or not a great deal of progress has been made and probably will continue to be made for some time to come.

The conditions surrounding the contractual relationship between the aviation industry and the Army and Navy of the United States, pointed out in the annual report of your company for the year 1923, have been very greatly bettered during the year There has been a clear recognition in Government circles that Government competition against the industry is not in the interests of the Government or the people; that the contractor who maintains an engineering department and creates thereby new designs and new advances in the art is entitled to receive a return for this work and not to have it taken from him without reward by the Government, that destructive competitive bidding tends to destroy rather than to benefit both the industry and the Air Services, and that a sound industry is an essential part of the machinery for national defense.

Close Cooperation With Government

As a result of the careful studies made by the Government officials as well as by the various committees mentioned, the company as well as all other companies carrying forward the development of the art, have received and are now receiving better cooperation and more intelligent guidance from the various Government establishments and bureaus with which they deal than they have received at any time since the War.

There has also been an appreciable growth in the demand for commercial airplanes and engines This demand has not as yet assumed a volume sufficient to justify the belief that the commercial end of the business will soon be more important than the military. The high standards required by the military forces of the country still remain and probably will remain the principal inspiration for the development of new types and for the further perfection of both engines and planes The company is essentially an engineering company, engaged in invention, experiment, and development It greatly curtailed its facilities for carrying forward these branches of its work in the year 1923 owing to the obvious facts of the case, but it maintains and will continue to maintain its technical divisions on whatever scale may be required by the military services and by commercial aviation as the latter expands.

Business on the books of the company at the present time is approximately three times what it was at this period of the year 1925 and the prospects for new business appear to be considerably better than they were a year ago. Approximately one half of the current increase is in orders other than United States Government orders. The company is easily holding its own in all types of military airplanes, in commercial airplanes, and in the types of engines which it builds

CONDENSED CONSOLIDATED BALANCE SHEET, DECEMBER 31

ASSETS	1925	1924	1923
Property Accounts (Net)	$1,334 682 23	$1 680 838 28	$1 678 801 22
Patents and Good Will (Net)	1 057 803 80	1 112 401 99	1 395 885 45
Investments	454 323 31	53 001 00	53 801 00
Inventories	881 779 57	919 029 47	1 187,120 20
Accounts and Notes Receivable	387 733 31	403 423 40	474 429 96
Cash	198 712 18	179 346 27	246 092 08
Investment in Loans		255,000 00	300 000 00
Investment in Bonds		50 000 00	
Deferred Charges	105 519 01	42 504 33	78,080 33
TOTAL	$4 590 570 17	$4 800 519 77	$5 364 248 77
LIABILITIES			
Mortgages Payable	$ 853 000 00	$ 852 000 00	$1 330 000 00
Accounts Payable and Accrued Interest	41 407 08	58748 40	347 272 59
Capital Stock			
Preferred	2 523 100 00	2 523,100 00	2 523,150 00
Common	238 287 53	936 207 53	938,287 53
Surplus	235 795 55	280 400 84	225 558 68
TOTAL	$4 590,570 17	$4,600,316.77	$5 364 248.77

CONSOLIDATED INCOME AND SURPLUS ACCOUNT FOR THE YEAR ENDING DECEMBER 31 1925

Sales		$1 937 998 02
Deduct—Cost of Sales		1 707 103 42
Gross Profit on Sales		$ 229 594 90
Add—Other Income		114,224 03
Add—Profits of Subsidiary Companies		16 644 11
Gross Profit		$ 358 432 80
Deduct—Selling Administrative and General Expenses		71 155 78
Net Profit before deducting Interest, Depreciation of Patents and Special Charges		$ 289,277 01
Deduct—Interest	$52 075 18	
Deduct—Consignment Accounts and Bad Debts	34 642 80	
Deduct—Storage Expenses Assets Corporation	44 574 32	131 436 30
Net Profit		$ 156 780 71
Add—Surplus December 31 1924		230 400 84
		$ 387 181 55
Deduct—Dividends paid on Preferred Stock		151 382 00
SURPLUS		$ 235,795 55

Air Service Surplus Publications Exhausted

A few weeks ago, AVIATION published, at the request of the Information Division, Office of the Chief of Air Service, a note to the effect that the Division had on hand copies of certain publications in surplus and that these would be sent to anybody writing to Washington, stating their request

AVIATION is now informed that the response was exceedingly great and, within a few days, the supply was completely exhausted Yet the Information Division continues to receive hundreds of requests from all parts of the country An attempt at first was made to answer each of the communications received stating that the supply had been exhausted and tendering regrets that it was impossible to meet further requests. However, the work involved began to put such a heavy burden upon the personnel of the Information Division that it has been found impracticable to continue along this line

Readers are, therefore, notified herewith that the available material has been exhausted and that it will be useless to make further requests. The Information Division has expressed its regrets that it can no longer satisfy the demand for the publications originally available and that it is quite impossible to reply to any further communications in this matter that may be received.

Wright-Bellanca Tested

Figures of interest to commercial aircraft operators have just been announced by the Wright Aeronautical Corp. following a series of fuel consumption tests made with the Wright-Bellanca six-seater enclosed cabin monoplane

This plane was designed especially for commercial service Once having established the reliability, safety, and general good flying qualities, the interest in such a plane centers around the load it will carry and the fuel it consumes. In order to throw some light on the commercial possibilities of the Wright-Bellanca, tests for fuel consumption were made with the plane loaded as follows

Pilot	160 lb.
Gasoline and oil	400 lb.
Pay load	1,013 lb
Total useful load	1 573 lb

Performances

With this load, the top speed was 135 m.p.h At a speed of 115 m p h, the fuel consumption was 13 5 gal per hr, the engine developing about 138 hp At a speed of 100 m p h, the consumption was 9 7 gal per hr, or 10 3 miles per gal. At a speed of 78½ m p h, the consumption was 7 6 gal per hr, or 10 3 miles per gal, again

In order to establish the fuel consumption figures firmly upon a scientific basis, the Wright-Bellanca was provided with two fuel tanks and a valve, permitting fuel to be taken from either tank while flying. The machine warmed up and took off using fuel from one tank The fuel in the other tank was carefully measured When the pilot was ready to begin the fuel consumption tests the valve was thrown over so that the engine took fuel from the second tank and the time was noted.

When each test was completed, the time was again checked as the fuel valve was thrown over so that the plane continued its flight and landed using fuel from the first tank By this means fuel consumption for any particular condition of flight can be determined

Other figures show that the Wright Bellanca is not simply an airplane which will carry a large pay load with small fuel consumption It does more than that For example, it takes off with a pay load of 1508 lb in 16 sec, the run being only 750 ft Its rate of climb at sea level at full throttle is 1,000 ft per min It climbs to 5,000 ft in 7 min In other words, it has economy plus ample reserve power

It will be remembered that, during the International Air Races held in Oct. 1925, at Mitchel Field, L I, the Wright Bellanca plane gained first place in Efficiency in the Aviation Town and Country Club of Detroit Race scoring points which were far above those of the nearest competitor in this section of the contest

The Wright Bellanca plane with 200 hp Wright "Whirlwind" engine. This picture was taken before the new exhaust manifold was fitted This addition even further reduces the noise in the cabin, rendering it possible to carry on conversation in flight with ease

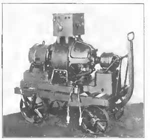
Electric Arc Welding in Airplane Construction

Precise Requirements Must Be Satisfied For Reliable Results.

By A G BISSELL, General Engineer
Westinghouse Electric and Manufacturing Company

THE USE of electric arc welding in airplane construction and repair has been proved quite successful because of the great variety of applications in this work. For the benefit of those who may not be familier with the process of electric arc welding, a consideration of its elementary principles, with a discussion of the deposition of the metal of a mild steel, and the welding wire in the welding of steel parts, is necessary The process should be followed through step by step

The power used is either direct or alternating current, supplied by a special generator or transformer In the case of direct current, the positive side of the circuit is connected to the work upon which the deposit is to be made, while the negative side is connected, by means of a special holder, to a steel wire. The steel wire is brought into contact with the work, then parted from it a distance of about one eighth of an inch, an arc results that produces a temperature of between 2,000 and 2,500 degrees, Centigrade This intense heat, localized at the point of impact of the arc stream, immediately fuses a spot on the work into which the molten metal from the end of the wire is projected. This molten metal from the wire unites with the molten metal of the work, to build up a deposit that solidifies as the arc proceeds. In this manner, metal may be built upon a surface or it may be deposited between two edges in such a way as to render the parts solidly and completely united



A Motor Generator Arc Welding Set

The electrode wire is of hard-drawn mild steel, having the following average chemical composition

Carbon 0 16% manganese, 0 56% phosphorus, 0 032% sulphur, 0 024% silicon, 0 016%
Tensile strength, 100 000 lb per sq in Elongation 6% in 2″

The reason this wire has such a high tensile strength is that it is hard drawn, which is necessary in order to produce the most satisfactory results. It is quite an advantage to use hard-drawn wire because it will pass through the arc and penetrate better than an annealed wire. In welding overhead, the globule of metal that forms at the end of the wire will run down on the annealed wire, while, on a hard-drawn wire, it will stay in place and is easily put into an over-head weld

The theory of over-head welding is very interesting When the arc is struck on the work, the metal of the work and the end of the electrode wire, begin to fuse As the fusion continues the metal on the work begins to sag and the metal on the electrode forms a globule When this globule is brought into contact with the molten metal of the plate, it is drawn to the plate metal by capillary attraction This action takes place very rapidly The process can incidentally be reproduced, using mercury in place of the molten metal To do this work, a very close arc is required In down-hand welding, the metal transfer is mainly due to gravity

The Chemistry of the Process

In passing through the arc, this metal, which is in the molten and vaporized states, comes in contact with the elements of the air at the external surface of the arc stream, the exent of this contract being determined by the length of the arc held by the operator The shorter the arc, the less the metal is effected by the atmospheric elements At the temperature of the arc, the main elements of the air, oxygen and nitrogen, have a great affinity for the metals in the arc stream The result of this affinity is that the nitrogen and oxygen combine with the elements of the wire to form oxides and nitrides. The carbon of the wire combines with the oxygen of the air, to form carbon dioxide and carbon monoxide Both of these compounds are gases and escape, that is, unless they are entrapped in the molten metal. The oxides of iron, manganese and silicon float to the surface of the molten metal as slag, while the phosphorus and sulphur are altered but little. The nitrogen combines mainly with the iron To be sure, some of each of the oxides and nitrides are scattered throughout the metal, but the extent of this is determined by the amount that is permitted to enter by the operator. An analysis of the above metal, after passing through the arc, is given as carbon 0 05 per cent, manganese, 0 18 per cent, phosphorus, 0 031 per cent, sulfur, 0 038 per cent, silicon, 0 011 per cent, nitrogen, .11 to .13 per cent, oxygen, .25 to .55 per cent, tensile strength 55,000 to 62,000 lbs per sq in To make a good weld, it is necessary to prevent the introduction of impurities into the metal that is being deposited By holding a very close arc, that is between ⅛ in and 3/16 in, the arc stream is completely surrounded by an envelope, mainly of iron-oxide vapor, that prevents the active oxygen and nitrogen on the outside from coming in contact with the active elements on the inside and permits a fairly pure metal to be deposited on the work

After the metal has passed through the arc into the molten spot on the plate and is again solidified there results a production of cast steel and at the same time an alteration of the crystalline structure of the plate metal in the immediate vicinity of the deposit

The effect of the heat in the steel usually extends but 0.12″ into the parent metal In airplane construction this limited heating effect is very desirable, as structures consisting of tubular members may be united with a minimum amount of wrapage

The intimate union between the added metal and the plate is very marked The crystals of each metal become perfectly immeshed The added metal may be identified by the inclusions of oxide and nitride that appear as black specks in it. The added metal in one particular specimen developed

a tensile strength of 57,100 lb per sq in and an elongation of 8.5 per cent on 1 in The test piece was bent at the weld to 39 deg before fracture occurred

That there has been so much adverse criticism of arc welding has resulted from the fact that there has been much poor arc welding done, mainly because the operators were not thoroughly acquainted with their process It is comparatively easy to hold an arc and melt a piece of welding wire, but to maintain the correct welding conditions is quite another thing If your current is too low, or you have your polarity reversed, you also get a deposit of metal, but, when subjected to a strain, you will find that the weld metal has united very little with the plate, the lack of fusion being due to insufficient heat If too high a current is used the added metal and the adjacent plate metal will be burned Much oxide will be introduced into the weld and a weak joint will result

A great many arc welds are very hard and brittle This is due, in most cases, to the presence of excessive nitrogen in the weld If a piece of very soft iron be heated in an atmosphere of nitrogen at 760 deg Centigrade and cooled in it, the metal will become so brittle that a 5/32 in wire so treated may be snapped like a piece of wood

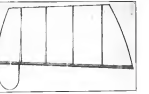
Effects of Incorrect Current

The deposited metal obtained when using an excessive current is usually of a very poor structure One sample showed clearly the deposited metal obtained using too high a current This metal was deposited from a 5/32 in wire, using over 200 amperes, and under the microscope could clearly be seen the considerable foreign material present. The grain boundaries were filled with oxide, and, on careful examination, the characteristic needle-like structure shown in the nitrogen-saturated metal could be seen. This metal is very brittle and, in many cases, will crack along the oxide laden boundaries during cooling A comparison was made between this metal and metal deposited at the proper current A specimen showing arc-deposited metal that is clean and free from impurities was obtained This metal was deposited from a 5/32″ wire, using 130 and 150 amperes It was noticed that the structure of this metal was more or less annealed, which made it soft and capable of being chipped, drilled or machined.

Typical Welding Test Pieces

In spite of the ease with which a poor weld can be made, good electric arc welds can be made, where the operators have been properly trained and supervised and have good equipment and the proper welding materials. Supervision is by far the greatest factor in the production of good arc welding A supervisor, well experienced in all phases of welding, should be in charge of the work He can judge the ability of his operators and place them on the work they are most capable of doing He should be responsible for all work done. By this method, a uniform variety of work will result Perhaps the best method of getting good operators is to train them from "green" men, as the average floating arc welder is not of very high caliber and invariably knows too much about the art, and, in most cases, causes trouble by failing to follow directions

In airplane construction and repair, arc welding has many applications. Probably the greatest use of arc welding in this industry is in fuselage construction One of the photo-



Welded Tube Rudder Construction

graphs shows various test pieces subjected to tension and compression while, in another, will be seen a rudder assembly in which all joints are made by arc welding

In and about an industrial plant the arc welder is of great assistance as a repair factor The experienced operator is capable of making repairs in cast iron steel and the copper alloys By avoiding preheating, considerable expense is eliminated in repair jobs.

The equipment which at present is being used at McCook Field and the Fairfield Station are Westinghouse motor generator arc welding sets The set at Fairfield is the most recent and consists of a 200 ampere motor generator in connection with an auxiliary control which gives it a current range from 10 to 300 amperes. This current is obtainable in increments of less than 5 amperes, by means of one central hand wheel The constant current characteristic of this generator make it ideal for arc welding thin sections, as the current variation, due to change of arc length, is very small. Because of this, the experienced operator, working with this set, has complete control of his arc heat by the manipulation of the arc length

Domestic Exports of Aircraft and Engines

The Bureau of Foreign and Domestic Commerce of the Department of Commerce has made the following announcement of aeronautical exports, January, 1926

Countries	Engines for aircraft Number	Engines for aircraft Dollars	Airplanes seaplanes and other aircraft Number	Airplanes seaplanes and other aircraft Dollars	Parts except tires Dollars
Soviet Russia in Europe					24 141
Canada					172
Salvador			1	4 188	264
Mexico			1	10 000	[illegible]
Cuba					600
Argentina					100
Peru	3	16 125		[illegible]	[illegible]
Japan including Chosen					75
British S. Africa	6	1 020			[illegible]
Total	9	17 145	2	14 188	25,556

Magnetos Contribute to Successful Test

In connection with the recent 50 hr. Navy test of the Packard 1500 600 hp aircraft engine, described in the February 8 issue of AVIATION, it is of interest to mention the excellent performance of the Scintille magnetos on this engine. While the engine crankshaft speed required to develop 600 hp was 2500 r.p.m., the speed of the two AG 12-D Scintilla magnetos was 3750 r.p.m. In this 50 hr. test and the additional 50 hrs the engine had operated the number of breaks of the contact points of each magneto totaled 90,000,000.

The Stinson Detroiter Cabin Plane

A Four Passenger Cabin Airplane With Novel Features and Excellent Performance.

ONE OF the latest entrants into the field of purely commercial aircraft is the luxuriously appointed Stinson Detroiter, a four-passenger, enclosed cabin plane designed by Eddie Stinson, and put through its first trial flights recently. A passenger, who enjoyed a flight in the plane, was forced to recall a flight, which he made last year, when, in an open cockpit Army Air Service observation plane, he flew to Lake Von Etten to witness the winter maneuvers of the First Pursuit Group. Because the thermometer hovered around the zero mark and because the plane in which the flight was made was of the open type cockpit, it was necessary to be dressed in all the regulation furs. Fur lined moccasins and a fur-lined helmet were worn and, to prevent the face from freezing, a chamois mask, which covered all but the eyes, was necessary, the eyes in turn being shielded by goggles. In spite, however, of all these appurtenances, the occupants of the plane were almost frozen before a landing was made at Von Etten.

Great Comfort

When flying in the Stinson Detroiter, however, the story was different, in spite of the fact that the weather was just as extreme. The passengers sat in comfort in the heated cabin of the plane, a thermometer indicating the normal temperature of fifty degrees above zero. A flight for half-an-hour was made without the slightest discomfort, in spite of the fact that the occupants of the cabin were clad in no extra clothing, whatsoever. The test flights were carried out at Packard Field.

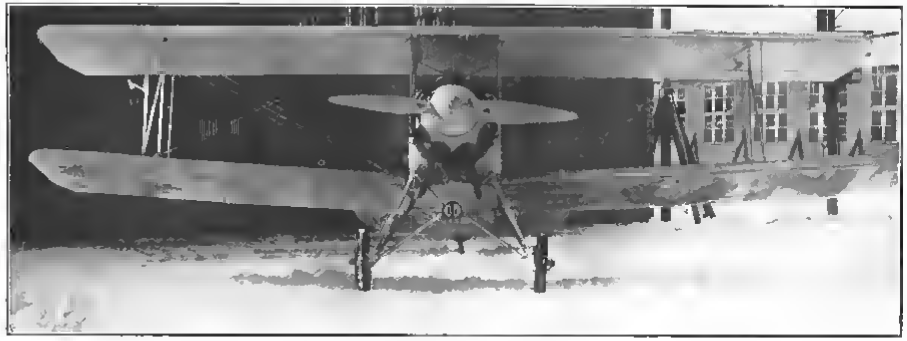
The development and successful testing of this plane is a result of, in part, many years of flying experience. Eddie Stinson's flying experience extends over fifteen years, during which time he has spent more than 11,000 hr. in the air. In designing the Detroiter, three ideas were held in mind. In the first place, it was desired to make a plane which would be as safe as possible, and secondly, it was to be entirely comfortable for passengers and pilot alike. Finally, and by no means least of importance, the design was to be such as to lend itself to production requirements. From the standpoint of the owner pilot, the airplane is admirably fitted. Among the valuable and novel features of the plane are: The electric self-starter for the engine, the individual brakes on each wheel, the luxuriously upholstered and heated cabin with carpet on the floor and an electric cigar lighter.

During the test flights, Stinson, who was piloting the plane, demonstrated the ease and safety with which the plane could be controlled. It was possible to remove hands and feet from the controls and leave the machine to itself for a considerable time. It has proved a very easy plane to fly.

Eddie Stinson

The first flights were carried out when the field was covered in snow and, accordingly, automobile chains were fitted to the two wheels of the undercarriage of the machine. Chains have, as far as it is possible to learn, never before been employed on airplanes. Regarding their use, Eddie Stinson said, "It is possible, in this plane, for us to make a landing with our brakes set and the wheels locked. Because the field is covered in snow, there is a tendency for the wheels to skid, and I wish to demonstrate that the plane will stop in an unusually short distance by application of the brakes. Brakes

A general view of the Stinson-Detroiter

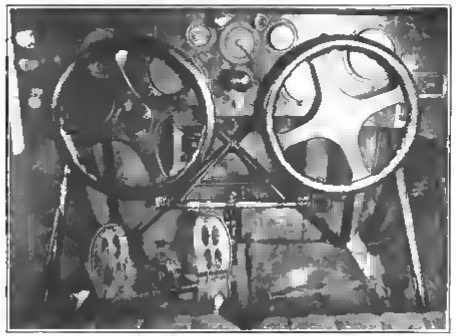


Front view of the Stinson-Detroiter

are important because they permit us to stop within 100 ft. This means the ability to come down in almost any field in the event of a forced landing".

Advantages of Wheel Brakes

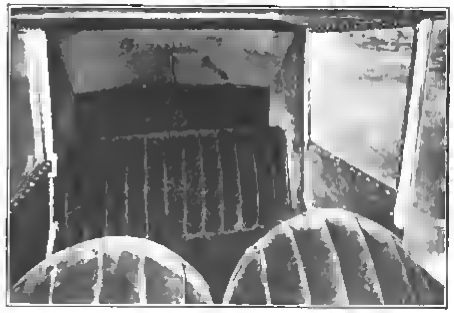
The wheel brakes perform more functions than just that of shortening the landing run of the machine. When commencing a flight, all the pilot has to do is to seat himself in the plane and set the starting switch. Putting the brakes on will prevent the machine from bounding forward while the engine is being warmed up and completely dispenses with the necessity for chock blocks. As a result of the extreme care applied to the design and placing of the exhaust pipe, the cabin of the machine is very quiet and conversation



The control board of the Stinson-Detroiter. The individual brakes on each wheel are worked in conjunction with the rudder bar. If the pilot desires to apply the brakes to both wheels, he presses down on both pedals. If he wishes to apply brakes on one wheel he merely presses one foot pedal. Dual control is provided, the wheel is pushed forward and backward through the dash. The adjustable stabilizer control a lever can be seen on the extreme left

between the occupants is a matter of no difficulty, whatsoever. The power plant is a Wright Whirlwind radial air-cooled 200 hp. engine, carefully streamlined, by cowling, into the fuselage.

The machine is constructed of welded steel tubing throughout with the exception of the wing spars which are of heavy spruce wood. The ribs are of duralumin. The whole structure is covered with fabric. This, needless to say, greatly lessens the cost of construction. In design and construction, careful consideration has been given to the American Aeronautical Safety Code and the stipulations and recommendations of this code have been carefully followed.



The interior of the airplane. The cabin is heated and space is provided for four passengers and 300 lb. of mail

The pilot's vision is extremely good. It is possible for the pilot, in making a landing, to look directly over the leading edge of the wing and, while in flight he can conveniently see the wheels of the undercarriage. The undercarriage is placed well forward in order to reduce any tendency to nose over, which might otherwise be present when the brakes are on.

Brake Mechanism

The brakes are operated from the pilot's seat by means of foot pedals attached to the rudder bar, depression of each individual pedal resulting in a braking of the corresponding wheel. Both brakes may, of course, be applied at the same time by depression of both pedals simultaneously. By having the brake pedals arranged on the rudder bar it is possible to operate the rudder and brakes together, the one assisting the other and rendering ground maneuvering very easy and convenient.

The machine was built by the Stinson Airplane Syndicate of Detroit. The Syndicate is now being turned into a corporation for the production of the plane. Included in the Syndicate, are

Edward S. Evans, Alex Dow, Charles T. Bush, George E. Buchanan, Frank E. Bogart, sr., George W. Carter, T. F. Ferguson, James M. Evans, Harry R. Graham, Gny S. Greene,

The anti-skid chains which prevent sliding when landings are made on snow with brakes locked. Note size of brake drums

Henry E. Hand, Frank H. Joyce, J. K. Livingston, John L. Lovett, Thomas S. Merrill, Wm. E. Metzger, Hon. John W. Smith, Luther D. Thomas, Bruce H. Wark, DuBois Young, Arthur W. Winter, Joseph T. Blythe, George M. Slocum, Richard Fitz-Gerald and Maj. Reed Chambers.

Characteristics

General specifications of the Stinson-Detroiter are given in the following table:

Passenger capacity	4 or 5
Cruising range	500 miles
Span, both wings	33 ft. 9 in
Length, overall	28 ft.
Chord, both wings	6 ft.
Angle of incidence, top wing	none
Angle of incidence, lower wing	none
Dihedral, upper wing	none
Dihedral, lower wing	4 degrees
Wing curve	U.S.A. 35B
Total wing area	350 sq. ft
Weight, empty	1,700 lb
Designed to carry	1,200 lb
High speed	125 m.p.h.
Cruising speed	105 m.p.h
Minimum flying speed	50 m.p.h.
Landing speed	45 m.p.h.
Gasoline capacity	76 gal.
Oil capacity	7½ gal
Propeller	Curtiss-Reed Metal type
Horse Power	200 hp
Electric self-starter	Bijur

Navy Places Large Aircraft Orders

The Secretary of the Navy has announced an order, placed with the Packard Motor Car Co. of Detroit, for 150 800 hp. engines, at a total cost, including spare parts, of $2,364,000. These engines are intended for use in the bombing, scouting and torpedo planes for the aircraft carriers, U.S.S. LEXINGTON and U.S.S. SARATOGA. This order constitutes the single largest government order for aircraft engines since the war and marks the transition from the development to the production stage in this particular type of engine.

The Packard 800 hp. engine has been subjected to intensive tests on the block and in the air. Two of these engines were installed in the Boeing PB-1, one of the largest seaplanes in existence. Additional engines have been tested in scouting, bombing, and torpedo planes and have demonstrated a very marked increase in all around performance over the previous engines used in these planes. These are the largest aircraft engines made in the United States.

The development of this engine by the Packard Motor Car Co. has taken place over a period of nearly three years. The original design and the details of the development work were handled by the Packard company.

The Packard company has also been given an order for seventy-five of Packard 500 hp. engines, type 1A-1500, which are similar in general design to the Packard 800 hp. engines. These engines are intended for use in the new carrier fighting planes, for which an order for twenty-seven has recently been placed with the Boeing Airplane Company of Seattle. Others will be used in the PN-10 long distance scouting planes now under construction. Still others are to be used in Loening amphibians now on order of the type similar to the airplane recently catapulted at the Washington Navy Yard. Negotiations are now under way for the purchase of additional Loening amphibians to be powered with the Packard engine and, for this purpose, about forty more engines will probably be required at an early date.

The Navy has recently let a contract with the Curtiss Aeroplane and Motor Company, Garden City, Long Island, New York, for thirty-five fighting planes for the U.S.S. LEXINGTON and U.S.S. SARATOGA. These planes will be powered with Curtiss D-12 engines, a number of which are already on hand. All the airplanes mentioned are scheduled for delivery in advance of the date of commissioning of the U.S.S. LEXINGTON and U.S.S. SARATOGA.

In all, contracts totaling $6,500,000 have been awarded for engines and planes. The contracts will provide a total of 116 planes and 261 engines, distributed as follows:

27 Boeing Patrol planes; 35 Curtiss fighting planes, 10 Loening amphibians, 24 Martin scouting and torpedo planes; 20 training planes, Consolidated Airplane Co.; 75 1-A 1500 500 hp. Packard engines; 150 2-A 2500 800 hp. Packard engines; 36 Wright "Tornado" engines.

Further, contracts will be let at an early date, totaling about $3,700,000, which will provide 100 bombing planes and 27 additional Loening amphibians.

Danish Air Transport Reports 1925 Activities

On the joint routes, which were maintained by the Danske Luftfartselskab (Danish Aero Transport Co.) and the Dantscher Aero Lloyd, during the summer of 1925, both companies traveled a total distance of 299,742 km., transported 1,400 passengers, 22,949 kg. of goods and baggage, and 2,301 kg. of mail, according to a recently published report of the Danish company. The Danske Luftfartselskab alone covered 126,837 km., carried 766 passengers, 12,613 kg. of goods and baggage, and 1,307 kg. of mail.

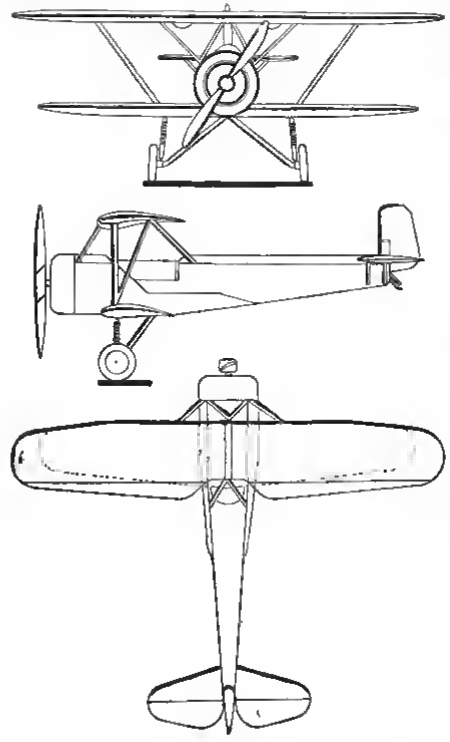
The joint routes were operated between Copenhagen and Berlin and Copenhagen and Hamburg. From Sept. 4, to Oct. 13, the Danske Luftfartselskab participated in 12 flights between Copenhagen and Paris, via Amsterdam.

The trip Copenhagen-Berlin by airplane is made in 3 hr. 44 min., compared with 12 hr. by rail; Copenhagen-Hamburg, 2 hr. 14 min., compared with 11 hr. by rail; and Copenhagen-Paris, 6 hr. 10 min., compared with 32 hr. by rail. The fastest flying time made on the Copenhagen-Berlin route was 2 hr. 10 min.; on the route Copenhagen-Hamburg, 1 hr. 30 min.; and Copenhagen-Paris, 4 hr. 42 min.

A Dutch Training Plane

The Koolhoven F.K.32 School Plane With Rotary Engine.

HOLLAND, THOUGH a small country, is noted for the hard headed common sense of its people. Their aeronautical development has, of course, not been on a large scale but it has been developed along sound and frequently very original lines. The Dutch have colonies both in Africa and in the East Indies, which offer a good field for aeronautical development and this fact is by no means being overlooked by the Dutch. Furthermore, unlike many smaller countries who import aeronautical equipment for their own use from other countries, the Dutch build their own aircraft and actually carry on a certain amount of aeronautical export business. The extensive interest existing in Holland in aviation is characterized by the success of the Royal Dutch Airway, known as the K.L.M., which is noteworthy for its efficiency and regularity.



General lines of the F.K.32

The successes which have been achieved, however, have not been without the application of the ability of Holland's best aircraft designers. In Frederick Koolhoven, Holland possesses a designer of very real ability. It will be remembered that, during the war, Mr. Koolhoven was active in England, being responsible for the designing of the famous Armstrong-Whitworth machines which were used so extensively in the early days of the war. Later, Mr. Koolhoven designed the B.A.T. machines, the most notable of which was the "Bantam" pursuit plane and the large air transport machine.

Interesting Load Distribution

A recent training plane of his design, which has been constructed in Holland, incorporates many notable and interesting features. The plane, known as the F.K.32, is a two seater designed, not so much for primary training as for the instruction of future pursuit pilots. It is rugged and inexpensive in construction and the designer claims that it has many of the flying qualities of a plane like the Avro but, of course, has a superior performance. The lower wing is of a thick section and is constructed in one piece and bolted directly to the bottom of the fuselage. The upper wing, however, is in two pieces hinged at the center section. The lower wing thus takes the stresses on the upper wing, in addition to those upon itself, through the interplane struts. The arrangement makes for great simplicity and, in certain respects, the cantilever principles involved are better than those where both wings are rigid throughout.

Structural Features

The two upper wing panels join on the center line of the fuselage. The steel tube bracing which runs up from the fuselage to the hinge pins of the two upper wing panels is built as a bridge-like structure from behind the pilot's seat to in front of the student's seat. As a result, the top longeron of the fuselage, abreast of the seats of the passanger and pilot, can be cut away, thus allowing a much easier entrance and exit.

The landing gear is of the split axle type with a very wide tread as the vertical component strut comes up directly under the wing struts. The ailerons extend the whole length of the upper wing and are very narrow. The fuselage is of standard construction of wood longerons and wire cross-bracing, covered with plywood. A rotary Clerget engine of 130 hp. is installed.

The employment of a rotary engine in a military plane in some respects appears to be going back to old practices when the use of this class of power plant, especially in small machines was a common practice. Another interesting feature of the F.K.32 is the shape of the wing section used, which resembles somewhat the lines of Joukowsky designs. The section is moderately thick with the characteristically sharp trailing edge. It is interesting to note that the stabilizer and rudder surfaces are also of comparatively thick section.

General Characteristics

The general characteristics of the plane are as follows:

Span	26 ft. 3 in.
Length	23 ft. 4 in.
Area	215 sq. ft.
Weight, empty	1,342 lb.
Useful load	572 lb.
Load per sq. ft.	8 lb.
Load per hp.	14.5 lb.
Performance	
High speed	85 m.p.h.
Low speed	40 m.p.h.
Ceiling	15,000 ft.
Climb to 8 min.	9,200 ft.
Climb in 17 min.	13,680 ft.

The French have been conducting a series of tests for the most rapid climb to an altitude of 6,000 meters. On Feb. 12, at Villacoublay, Pilot Petit in a Barnard pursuit plane (Hubert license) reached this altitude, which corresponds to 19,680 ft., in 17 min. 15 sec. According to the barograph, the height of 5,000 meters was reached in 12 min. 20 sec. The performance of the F.K.32, therefore, appears to be excellent.

A Remarkable Crack-up

When a skii was seen to fall away from the landing gear and remain hanging upside down from the axle of the fast PW-8 pursuit plane which Lieut. Luther S. Smith, A.S., 94th Pursuit Squadron, was flight testing on Monday, Feb. 22, the fact was soon broadcasted and the vicinity around the Post Operations office at Selfridge Field became a place crowded with staring onlookers guessing at the odds against another life.

"Does he know one of his skiis is hanging down?" Lieutenant Strahm, Post Adjutant, asked of Lieutenant Hunter, Post Operations officer, as they stood watching Lieutenant Smith put his ship through every known stunt in a vain and futile effort to right the faulty skii.

"Yes," was the reply. "If he didn't I would go up and signal him but one of the mechanics has already called his attention to it so it's up to Smith. If he wants to land he can try it or he can let her fall and take to his chute. He is past any assistance from us."

"What would you do Hunter?" someone asked.

And, "damned if I know," came back the laconic response. Another pilot, nearby, his eyes fastened on the ship, vouchsafed the information that the Government could give him a new ship but they couldn't give him a new back and that he would take to his chute and let the ship fall. Aeronautical insouciance!

Such is the life of an Air Service pilot, for these things grow to be but commonplace, often long before he has joined that elite of airmen who have their thousand hours.

Skii Fittings

A heavy fall of snow during the past two weeks, having made the field unsafe for landing past pursuit ships with wheels, each ship was equipped with skiis. These skiis, fitting to the axle of the landing gear in the same manner as the wheel, are held in place by brace wires, front and rear in such a manner that when the ship is in flight the shock ab-

The landing

sorber cord attached as part of one of the front brace wires, pulls the nose of the skiis up, which, in landing, lets the heel of the skii hit the ground first, eliminating any possibility of nosing over by sticking the nose of the skii in a convenient drift of snow or ice.

Skii Wires Snapped

In taking off, the two front wires on the left skii snapped, due to some sudden strain, and the speed of the plane caused the skii to reverse its position on the axle until it was practically upside down. A mechanic rushed on the field and, by signaling, conveyed to Lieutenant Smith the fact that something was radically wrong with the undercarriage of his plane. The PW-8 type pursuit plane is so constructed that, by looking downward over the side of the cockpit, the pilot can see the axle of his landing gear, an invaluable improvement since the loss of wheels or skiis or even the shearing off of the entire landing gear would seldom be noticed by the pilot in the 'feel' of the plane.

Lieutenant Smith glanced down and nodded his head, so the mechanic reported, evidently signifying that he understood his predicament and would take care of the emergency as he thought best. Lieutenant Smith could do but one of two things; he could pull the plane up until it stalled and then plunge headlong into space, depending solely upon his parachute, which every pilot must wear and which has proved almost perfect in its reliability, letting his plane fall into the inevitable tail spin and destroy itself in the ground, or, he could attempt a landing, more dangerous by far, but holding the possibility of saving the airplane with but little damage. But a landing might, also, and easily enough mean his own death, for these fast little planes do somersaults so quickly that the eye can scarcely follow. He could effect a landing by 'pancaking', consisting of stalling the machine just above the surface of the ground and dropping the remaining two or three feet with as little forward speed as possible, or, he could try for a perfect 'three-point', i.e., his good skii, the tip of his wing and the tail skid. A landing of this nature might be successful provided that his flying speed was very slow so that, when the hub of the landing gear hit the ground and the plane made the subsequent 'ground-loop', it did not nose over.

Lieutenant Smith must, therefore, have weighed each proposition on its merits. The crisis was his, to deal with as best he could.

Contemplation

"When I found that one skii had broken loose," said Lieutenant Smith, after he had taken some of the kinks out of his body, which is long and completely fills the ordinary cockpit, "I climbed to twelve or fifteen hundred feet and tried my every known stunt to bring that skii back in place. Going into a steep dive, I would bring the nose up until she almost stalled, in hope that a sudden reversal of direction and speed would turn it on the axle. I barrel-rolled, spun, looped, and everything, yet always that skii remained upside down. It seemed I was in the air for hours, but it was in reality, only about thirty minutes. I could have jumped and trusted my parachute but, somehow, it just seemed that I could bring that plane down, without serious injury to it or myself, so I decided that I'd try. Selecting what appeared to be that part of the field with the heaviest blanket of snow, (I wanted to make my landing as soft as possible,—who wouldn't?) I nosed down. Just before I hit the ground, I cut my engine and turned off my gas, for I didn't want to burn up, in case the machine decided to decorate the landscape, and held the plane as best I could on the good skii and the wing away from the broken one.

Things Happen Quickly

"My contact with old Mother Earth is rather a vague and hazy memory. I heard the good skii slide along the ground and the tail drop. I must have lost all my flying speed, for, during that infinitesimal period in time, wherein which the axle hit and the plane ground looped with a speed beyond my comprehension, shearing off the landing gear and burying her nose in the snow, I remember nothing, except a dull roar as of great storied buildings falling down about my ears and a sort of subconscious thought that Heaven couldn't be as nice as this.

"Instinctively, I must have pulled my head and shoulders into the protection of the cockpit about the time of the crash for, with the exception of a severe shake up of both mind and body, I found, by a series of movements confined to gently wiggling my toes, extending my fingers and moving my head, that I appeared to be in fairly good condition. Taking heart, I crawled from the cockpit and was standing there in a sort of trance when the first of the mechanics came rushing to the scene.

"It doesn't seem very bad now that it is all over, but up there in the air with that skii hanging down and my mind doing more stunts than one of these planes we fly could ever hope to equal well—it wasn't so nice, that's all!"

What Pilots Think About Air Legislation

A Final Selection of the Opinions of Those in Favor of Legislation.

Says Law Will Encourage Investment

Proper Air Legislation is, I believe, necessary to promote healthy aviation development in this country.

My flying experience dates back to the 'pusher' days of 1911. For the past five years my activities have been confined chiefly to the states of Massachusetts and Connecticut—both of which control flying by the examining and licensing of pilots and the inspection and registration of aircraft. Competent pilots, flying air-worthy planes have actually profited under State regulation due to the confidence bred in the man-of-the-street through his knowledge that the State within which he lives is actually doing something to safeguard him when he does desire to fly.

Capital is necessary to any industry. The investors who represent capital do not feel justified in risking their money, unless the equipment and organization which they are backing comes under some sort of legislation. Aviation does not differ from any other industry, when viewed from the investment standpoint.

Too much regulation is as harmful as too little. In England I had the opportunity of observing many of the facts brought out by Lieutenant Commander Kenworthy in his interesting letter. I obtained a British flying license (Civilian) and can vouch personally as to the strictness and long-windedness of the examination.

Harry D. Copland
West Hartford, Conn.

Favors Law For Public Protection

There can be no doubt that some sort of regulation regarding inspection of planes and pilots is necessary for the protection of the public. However I believe there is great danger in too much regulation which would of course be a serious set back to aviation.

All schemes of regulation would require inspection of pilots and planes and while the plane can probably be fairly condemned if unsafe, what human agency is qualified to condemn the pilot and qualify that one.

My flying experience began in 1914 with a ride as passenger at Hammondsport, N. Y. After the War, I did considerable flying and purchased a Jenny which I played with for a year. Since disposing of my own plane I have rented planes at every opportunity and of course, have flown many junk heaps. I have always been thrilled by stunting and usually indulged in it when flying alone.

The above seems to be proof to some extent that a really poor pilot may outlive a great many good ones and as this has been my observation from experience I hope any regulation will not be too hard on the pilots especially when they wish to fly alone for sport only.

A. Caldwell,
Kansas City, Mo.

Self-Confidence and Passenger Carrying

The carrying of passengers by inexperienced pilots has been the cause of many accidents that would have been avoided by more experienced men. By inexperienced pilots I mean those who have taken a course at some commercial field, say 10 hours and have had in all not more than 25 hours in the air. I do not believe that anyone with so little time is justified in risking the safety of a passenger. He is himself still in the learner's class. So long as all goes well he is safe. But in the event of a sudden forced landing he is apt to lose his head and do the wrong thing. So is the man who has had 500 hours for that matter. I have seen pilots of years' experience make some perfectly inexcusable errors of judgment. But generally the bad flying is done by the beginner. In the absence of any air laws it is entirely up to the individual if he wants to carry passengers before he is really qualified to do so. As to that, he himself will have to be the judge.

The truth of the matter is that every young pilot knows in his heart whether or not he is a good pilot. There is the exceptional case of the green man who feels that he is one of the best in the world, even if he isn't. But as a rule a new pilot has no illusions as to how good or bad he is at the controls. He can compare his work with his instructor's, and with that of the other pupils, and he will know if he has common sense whether he is apt or inept—unless, of course he is deliberately trying to fool himself. He should not do that, however. When he has completed his course and has had a few hours solo flying he should sum himself up and decide in his own mind, helped by the judgment of his instructor, whether he is a good pilot, a poor one or just some place in between. And unless he feels convinced beyond the peradventure of a doubt that he is a good safe flier he should not be so unfair as to risk the life of a passenger. When he has reached a stage where perhaps he can barely stagger about in the air, he may carry passengers if he wants to and is so unthoughtful of the safety of others that he will risk their riding with him. But a man of any moral responsibility will not do this for the sake of a few dollars. He will devote sufficient time to solo work to fit him to carry other people with a fair degree of safety.

In my own case I was a very poor pilot indeed for the first 25 hours. I did not seem to take readily to the work. My landings were wretched and while I did no damage to any plane I felt that I was very far from being even a passably safe pilot. I therefore bumped about alone and carried no passenger until I had something like thirty hours in the air. At that time I had learned where the ground was, and could calculate a glide so I landed in a field, not on top of a fence. I practised forced landings, cutting off the motor and gliding down to a field. I did not actually land in small fields but I glided down until I was sure that I could have landed there safely. Then I went on up again. I did this many times until I became certain that in a forced landing I could pick a field and land in it and not on the hedge around it. Then and only then did I carry passengers. Remember that many pilots are all right so long as the motor keeps going. But it stops at times. And then you want to know exactly what you can do with your dead plane. Until that time no one would do well to fly alone. Passengers are trusting people, by the way. They will fly with anyone wearing a helmet.

Cy Caldwell.

Believes Law Will Prove Favorable in Time

The feeling seems to be rather prevalent among a great many that legislation in general is going to kill flying entirely. Naturally, it all depends upon the legislation but I am most emphatically in favor of a law that will immediately prohibit some pilots from flying at all, and that will immediately cause to be destroyed some airplanes that I have seen carrying innocent passengers about the country. Of course this same ideal law of mine would issue licenses and certificates of airworthiness to other pilots and planes, who rated them, who would benefit in the gaining of public confidence to a very great extent. I think it is a crime that some people and some airplanes are allowed to fly at all and carry unsuspecting passengers for hire. I cannot see how any one can quarrel about that except these same people above mentioned who naturally do not want to be put out of business.

Of course any legislation is cumbersome in its action, and this particular one will undoubtedly work many undeserved hardships until it gets properly ironed out but I fail to see how any such arguments can cover up the vital fact that any one and any plane can carry passengers no matter how dangerous it may be and no law exists that can stop them.

I do not see how the public can ever have any confidence in aviation until they are assured that when they wish to fly the pilot and equipment they hire will be competent and in good condition.

And until the public really does have confidence in aviation as a whole, I believe we shall never progress materially from our present status and our present discouraging fatality records.

George B. Post
New York

Favors the Inevitable

I want air legislation for the same reason that I want to die—because it is inevitable. I would rather see it Federal because I believe the uniformity of it will more than make up for its possible severity.

I would be very much in favor of forming a fliers association to represent us. I think we are very weak as a whole if we allow non-flying men to be a factor in regulating us. I would like to see non-flying men barred because only a flier knows what constitutes true flying qualities.

Geo. C. Plummer
Hamleville, Ohio

Pilots Should Be Classified

I am for legislation in a mild form. Pilots should be classed according to their responsibility. Those that fly the large passenger transports or air mail ought to have a Class 'A' rating and require a fairly rigid physical and flying examination to qualify. A Class 'B' rating could be given the aerial service operators who should be required to pass a good physical examination and a fair flying test, one that would at least be thorough enough to protect human life. This would enable a man who could not pass an examination for the 'A' class to fall back to the 'B' requirements. There are any amount of pilots today who are very capable with small two and three passenger ships but I fear they would not do so well if required to fly a large multimotored transport.

Then there should be a Class 'C' pilot composed of business men, pleasure seekers and sportsmen. Practically no examination should be required of this type.

We should have legislation in a mild form to prevent aircraft from being flown that are in such a condition that when you lay your hand on the fabric it goes right on through. Planes that have an old worn out motor that just skims the fence each time it flies, should not be allowed. Student fliers should not be allowed to participate in any commercial flying until they are qualified to do so by Class 'B' examination.

But we should not have air laws so stringent that a man cannot fly unless he is a perfect specimen of physical and flying ability.

There is no reason why we should have a general condemnation of our war stock of airplane material.

I agree with the general opinion that it will not take long to destroy commercial aviation if air legislation is enacted in any form similar to the European countries.

Raymond C. Fisher
Des Moines, Iowa

Believes Inspection Necessary

I will ingeniously admit that licensing of pilots would be a good safety measure for the protection of the general public, but a pilot of average schooling, good health and fairly good habits with approximately a hundred hours, should be capable of operating under a state or government license. Personally I believe the planes, such as those used for barnstorming, need the inspection of state or government more than the pilots need to be licensed.

R. A. Young
Chicago, Ill.

Would License Pilots On Flying Hours

In regard to the regulation of the present day aircraft, there is no doubt but that there should be something done, as there are quite a number of passengers being carried by fliers with too few actual flying hours.

I believe if every pilot was required to have a license and that license to be issued only upon proof of a certain number of flying hours, say 40, the present day aircraft accidents in the commercial field would be lowered. I would allow only licensed pilots to carry passengers or do any form of commercial work.

Arlie Emmes,
Menominee, Mich.

Strongly For Technical Inspection

After eight years experience in commercial aviation in about all of its various forms I am confident that some sort of legislation is necessary if we are to progress much further than we are now. During these eight years I have flown nearly all types of planes both military and civilian. So far I have taken planes into the air in the past that I would not dare to taxi around the field now. I am sure that the lack of supervision as to pilots and planes in the past has retarded progress considerably. However, we must be careful and not swing from one extreme to the other. I can plainly see that it is possible for air laws to be so strict that it will put us all out of business. We must start some time to inspect pilots and planes so why not do it now before much more money is invested in aviation. If we must take a loss by junking some of our equipment the sooner we do it the better it will be for every one concerned. If I have any planes that are unsafe I want to burn them as soon as I can. Life cannot be restored but equipment can be replaced by new and safe planes any time one wishes.

I think pilots should be divided into three or more classes and licensed according to their experience and types of planes they are qualified to fly. All pilots should pass certain physical tests as to eyesight, heart, lungs and for certain nervous ailments. It is not necessary that they pass the usual Army examination. If such a hard examination is made necessary very few of the present day commercial pilots will be permitted to fly.

However, some regulation is necessary. I know of a pilot who is carrying passengers who is subject to heart trouble. Some day he will spin to the ground and the cause will not be known, but airplanes in general will be called unsafe and the newspapers will have something for headlines. I know of another that has poor eyesight and who is afraid to drive a car in traffic but he pilots an airplane and sometimes carries passengers.

The problem of how much experience is necessary before a student can carry passengers is a hard one. Some can fly better and are safer on twenty hours than others can on a hundred. I think a student should be granted a student's license when he solos and should have at least a hundred hours before he can get a higher grade license. Then he should be compelled to carry freight for a time until he has proved that he can act in emergencies and is safe. No set rules seem to apply to this case but let us try something and see how it works.

I think some supervision should be placed over instruction. Sometime ago I sold a plane to a young man, a stranger to me then. He had scraped up every cent he had in the world and some that he had borrowed. We started to the field so that he could fly the plane away and on the way out I asked him how much time he had had. He told me about three hours. He had paid $250.00 for a course in a school and had actually soloed with a little over three hour's instruction. A lot of luck must have been with him. Anyway he was graduated and turned out as though he were a seasoned pilot. Afterward he told me that the plane he soloed with might have been worth a hundred dollars. I gave him about eight more hours instruction and he took the plane away. He is still alive and a good pilot but he doesn't know how close he came to flying on some other earth than this.

I think all new models should be inspected and a sand test given before a plane of new design and construction is allowed to fly. There are too many amateur designers and builders who think they know all there is to know and build contraptions that look like airplanes and will fly until they fall apart or something equally serious happens. I know of an instance of a young man spending considerable time and money building such a plane. I happened to be on the field when he set it up. It looked like an airplane. It had a two hundred horsepower motor in it and when he asked me if I thought it would fly I told him I thought it would, but advised him not to try it. The next day he tried to get some first hand information on it. Before starting on his test flight he invited two innocent bystanders to go along. The contraption took off about the same instant he gave her the gun. After a marvelous climb to about fifty feet it went into a right hand bank and slipped into the ground. Final score: two passengers in the hospital and the pilot (?) with a broken nose plus considerable experience of no value to him. On doing a little investigating the next day we found that said pilot had never been to any flying school and had only been up in an airplane once in his life. Flying is an art that a correspondence school cannot teach even though there have been a few attempts to do so. This exhibition happened near a city of over seventy thousand population and resulted in everyone being fed upon flying for some time to come. The safe pilots with good safe planes had to suffer a loss. Such cases as this have happened in more than one place. Let's have some laws to stop such business.

Then there is our friend who cares little as to what condition his plane is in. These are in a minority as in my opinion the so called Gypsy flier of the past took pretty good care of his old bus because it was about all he had in the world except for possibly a few nickels in his pocket. The old bus might have looked rather hard due to being exposed to the weather but mechanically it was generally in good shape and was kept that way. But we had careless ones as we have them today in some of our fixed base operators and they generally end up in a sad crash. Let's have some inspection and stop this.

Now and then I see a pilot stunting some war surplus plane of questionable condition. I think I get more kick out of it than he does for I actually hate to look at it. Will some one please tell me of what value stunting is in commercial aviation? I have asked several this question but never received a satisfactory answer. I am sure a fellow loses more business by giving a stunt ride than he gets for the extra price he gets for it. It actually scares many people and they will never ride until it is stopped. In the last two years I have not stunted a passenger.

Then there are accidents caused by stunting and they are now a few. One of the best students I ever had and the only one I ever knew of being killed ended that way. During instruction I taught him how to recover from a spin and he carried passengers for some sixty hours. One day business was dull so he thought he would start things going by doing a little stunting. He went up alone and tried a wing over down wind at low altitude with the wind blowing about twenty five miles an hour. He knew better but got careless. I don't think he ever knew what happened, but aviation got an awful set back in that part of the country.

The Age of Aerial Transportation is at hand and there is business enough for all. With new and up to date equipment and good pilots we should not fear legislation. If there is any doubt about your equipment and pilots, you ought to replace them with the best or go out of business and join the Modock association. Put yourself in the place of the public who are ignorant as to a safe plane or safe pilot. Would you ride in a lot of planes you know of or with some of the pilots you know? You know you would not and you would join this so-called "Keep one foot on the ground" club you hear so much about. We must have some air laws and some supervision or we have gone as far as we are going to get for sometime to come.

Edw. G. Knapp,
Flint, Mich.

For Passenger-Carrying Licenses

I have always thought that pilots should be licensed to carry passengers and in order to be eligible should have a certain amount of experience. There seems to be an idea prevalent in Officialdom, and I notice in reading over Senator Bingham's speech and bill he has it too, that all civilian pilots should pass the regular army and navy physical tests also. In my opinion that is all wrong. Half the civilian pilots flying today could not pass such tests and there is no reason why they should. As an extreme case, I know a fellow with a wooden leg who has been a flier for years and is an expert pilot. The military forces retire their men for physical disability and naturally they must insist upon physical perfection.

In another place he wants to regulate the amount of power necessary. I got my training in the Army with OX 5s and Hall-Scotts. Since then the army seems to think 300 hp. is necessary for the same work. If such standards are adhered to 75% of all civilian ships will be put on the ground, for the old reliable OX is still the standby of civilian aviation!

W. W. Meyer,
Morton Grove, Ill.

Hopes For Proper Regulation

I think Cy Caldwell erred in his Aesop's fable. He forgot to gather up the hops that the poor frogs took and make broth out of them.

I have asked my dad what I should say about regulation and he answered that he had no one to go to to get his information from so I am jotting down that if I can make the money and carry the record that my dad has in his past twenty years of aviation I will be satisfied. I am going to try for an education and join the ranks of experimental workers just as he has been working out ideas that make it safer and easier to fly. His pioneer work never ceases.

I believe that there should be some laws and rules to assist aviation. I am myself a licensed pilot and hold F.A.I. license number 6334. After talking with all of the pilots in my father's employ, they all think that it would help interest with the public if there were rules and regulations governing commercial aviation.

We have the twenty-six passenger Lawson Airliner here now and are going to place four air-cooled radial motors in it, two pushers and two tractors. This will give it about nine hundred horsepower and lighten it up over the previous two Liberties. If the performance is satisfactory dad intends placing it on an air line in daily operation. Here's hoping that we get the proper regulation.

Barnam E. Parker,
World's Youngest Licensed Aviator,
Anderson, Ind.

Another Plea For Pilot Classification

That commercial aviation is in need of regulation is evident. But it must be of the type that will foster and encourage its growth, not the plan of the swivel chair aviators but the ideas and policies of the fliers themselves. Many plans will prove impractical but a good system should be forthcoming from the composite of them all.

I believe that all pilots should be licensed and rated either through completion of the course of the Air Service Flying Schools or through an F.A.I. test flight. I would suggest a classification somewhat along these lines. Class A. Pilots competent to fly all types of aircraft. Class B. Pilots confined to one type. Class C. Solo students with insufficient time to warrant commercial work. Class D. Students who have not as yet soloed.

Charles A. Barrett,
Bay City, Mich.

Safeguarding the Public

I believe a certain amount of regulation will have a beneficial effect on Commercial Aviation. Too much regulation will, of course, ruin any business and discourage those who might be most useful in contributing to future progress.

The public must be safeguarded. We cannot expect rapid progress in Commercial Aviation until the public feels that proper safeguards are enforced for its protection. The daring pilot who carries passengers in stormy weather should be punished. Storm warnings are displayed along our coasts for the safety of ships at sea. The public is entitled to protection from this danger while in the air.

The pilot who habitually stunts while carrying passengers, should be fined or regulated out of the passenger-carrying business. Stunting puts severe strains on certain parts of the airplane and is an entirely unnecessary hazard for the passenger.

The playful pilot who dives close to other planes in the air in an effort to frighten the occupants should be allowed a few days in some good jail to contemplate the error of his ways. The drunken pilot should not be permitted to carry passengers any more than a drunken chauffeur should be allowed to drive a public taxi.

I believe that flying, in good weather and from good fields is a safer proposition today than motoring on our beautiful smooth highways under present conditions of traffic, where you may expect a crazy driver at every curve and cross road. As a sensible precaution, however, I think that every new pilot should have at least fifty hours in the air before he attempts any passenger business. Safety is the first consideration in which the public is interested. A local license bureau might be a good means of protecting the innocent public against a too inexperienced pilot, if license fees could be kept low. If heavy special taxes or fees are imposed, it will undoubtedly tend to discourage flying and the expansion of the industry.

N. E. Storms,
Asheville, N. C.

State Aeronautical Laws

A Reprint of the Aviation Act of Florida.

FLORIDA

COMMERCIAL AVIATION ACT
(Senate Bill No. 90)

AN ACT to encourage the navigation of commercial aircraft in Florida; Fixing the License and Inspection Taxes; to Define their Rights and Privileges and Regulate the Navigation, Inspection and Licensing thereof and for Other Purposes Incident to such Navigation.

Be It Enacted by the Legislature of the State of Florida:

Section 1. Aircraft for commercial purposes shall be permitted to operate in the state of Florida on the following conditions.

Section 2. Every owner of one or more aircraft operated or kept in this State shall file annually in the office of the State Comptroller upon a blank to be furnished on application for that purpose a statement of his name, residence, Florida Post Office address and a description of each aircraft owned by him with such other information pertaining to the owner or the aircraft as may be required by the Comptroller. Such application shall be filed with the Comptroller at the same time as is required by law for the filing of automobile licenses. On receipt of the application the Comptroller shall if the application is found to be in due form assign the aircraft a distinguishing number and shall thereupon issue to such owner a certificate of registration which shall contain the name, place of residence, Florida Post Office address of the owner, the number assigned to such aircraft and such other information as the State Comptroller may determine is necessary. Before the aircraft so licensed shall be permitted to operate in and over Florida the certificate number and certificate showing inspection shall be placed in a conspicuous place in said aircraft and be subject to examination upon demand of any passenger or any proper officer.

Section 3. An applicant who does not file his application for registration of his aircraft at the time specified in Section Two of this Act, if the aircraft was not before the time of his filing said application ready to be used in the State of Florida, shall be entitled to a pro rata reduction in the fee required for such registration calculated to the first day of the month in which said application is made.

Section 4. Upon the transfer of ownership of any aircraft its registration shall expire and the person in whose name such aircraft is registered shall forthwith return the certificate of registration to the State Comptroller for cancellation with a written notice stating the date of the transfer of ownership and the name, place of residence, Florida post office address of the new owner. The registration date of every aircraft shall expire on the same date that the registration of motor vehicles in this State now expire under the law.

Section 5. Every aircraft shall at all times when in use or operation within this State have displayed thereon in a conspicuous place on both sides of the fuselage for aircraft having fuselages in figures not less than three feet high the distinguishing number assigned to such aircraft by the State Comptroller.

Section 6. The State Comptroller shall be empowered to carry out the provisions of this Act and the Governor shall appoint one or more inspectors competent to inspect aircraft and airdromes and:

(a) Provide for the testing and inspecting from time to time all aircraft operated or owned in this State as to their safety and trustworthiness and only aircraft found by such inspector or inspectors to be safe and trustworthy shall be issued a certificate of airworthiness.

(b) Provide for inspecting from time to time all airdromes within this State as to their suitability for the safe and secure use by aircraft; air navigation facilities found upon such inspection to be suited for such use shall be issued an operating airdrome certificate.

(c) Provide for the examination and determination of individuals to serve as airmen upon, about, within or in connection with aircraft. Such examination shall be based upon character, physical fitness, training, technical and practical experience of the airmen applying to take such examination and any individual found to be qualified after such examination has been made shall be issued an airman's certificate.

(d) Applicants for certificates as airworthiness certificates, airdrome certificates or airmen's certificates shall pay to the Comptroller at the time of making such application fees as follows:

(1) For registration and inspection or test for airworthiness of aircraft the sum of one hundred dollars for each machine to be inspected or tested.

(2) For inspection of airdrome for an airdrome certificate sum of fifty dollars.

(3) For examination and tests of airmen for airmen's certificate the sum of twenty-five dollars. For every additional copy of certificates of registration, examination or inspection the sum of one dollar per copy.

(4) The owners of all aircraft operated in this State shall pay a license tax of one hundred ($100.00) dollars per year at the time of being issued a certificate to operate in this State.

Section 6-A. The State Comptroller may after a hearing revoke or suspend any certificate that may have been issued for any cause which he may think sufficient to show the unworthiness or insecurity of either of the airmen, aircraft or airdrome.

Section 7. No person shall operate any aircraft in or over this state unless there is in force respecting it a valid certificate of airworthiness and the craft marked with its registration number as required by this Act.

Section 8. No person shall operate any airdrome or from any airdrome in this State unless there is in force in respect to it a valid operating airdrome certificate as required by this Act.

Section 9. No person shall operate, control or manage any aircraft in this State unless he has in force a valid airman's certificate as required by this Act.

Section 10. No person shall operate over a town or city at a height lower than that which enables an aircraft to glide in an emergency and at all times to some open or unobstructed place on land or water except in taking off from an airdrome.

Section 11. The provisions of this Act shall not apply to aircraft, airdromes or airmen in the service of the United States.

Section 12. A non-resident of this State may operate an aircraft in this State without complying with the provisions of this Act for 15 days only provided that such non-resident shall procure from the State Comptroller a permit so to do by showing to the Comptroller that such aircraft or airdrome is safe and secure and the airman is qualified to operate the aircraft safely and providing further that the party or parties desiring to use or operate such aircraft shall notify the State Comptroller within 48 hours of his arrival within the State and the probable length of his stay.

Section 13. The term "Aircraft" is here defined to mean any contrivance now known or hereafter invented, used or designed for navigation or flight in the air except a parachute or other contrivance designed primarily as a safety equipment. The term "person" means individual, partnership, association or corporation.

The term "airdrome" is defined to mean any area of supporting surface which is to be used for the maintenance of operating from of aircraft navigated by persons except any such area or supporting surface which is not operated for profit and which is used by the owner tenant solely for his storage, maintenance or repair of aircraft used exclusively for the personal use of himself, family or friends.

The term "airman" means any individual who engages in the navigation of aircraft while under way in the air.

Section 14. Aircraft companies lawfully doing business in this State and who shall have complied with the provisions of this Act shall have the right to establish airdromes, employ airmen and operate aircraft in this State through the air the same as common carriers and may provide themselves with landing places of safety at such places as are safe.

Section 15. This Act shall go into effect immediately upon its passage by the Legislature and its approval by the Governor and remain in effect unless repealed, amended or until the Congress of the United States passes legislation of a Federal nature directing the operation of aircraft over all territory of the United States.

Approved November 30, 1925.

New Air Mail Contracts Opened

Sealed proposals will be received at the Post Office Department in Washington, D. C., until 12 o'clock, noon, May 1, 1925, for carrying the United States mails on the route Seattle, Wash., to Victoria, British Columbia, from July 1, 1926, (or such subsequent date as the Department may order), to June 30, 1927.

The distance from Seattle, Wash., to Victoria, British Columbia, is about 84 miles, and the service is to be in close connection at Victoria with outgoing and incoming trans-Pacific mail steamers. The contract is for not more than an average of twelve round trips a month, for the transportation of not to exceed 600 lb. of mail per single trip each way, by a schedule satisfactory to the Postmaster General, the contractor to receive and deliver the mails at a convenient location in Seattle.

Sealed proposals will also be received at the Post Office Department in Washington, D.C., until 12 o'clock, noon, May 1, 1926, for carrying the United States mails on the route New Orleans, La., to Pilottown or to Port Eads, La., from July 1, 1926, (or such subsequent date as the Department may order) to June 30, 1927.

The distance from New Orleans, La., to Pilottown is about 80 miles or to Port Eads, La., about 92 miles and the service is to be in close connection at Pilottown or Port Eads, with outgoing Central American and Havana, Cuba, steamers; and at Pilottown, or Quarantine, or Port Eads, with the same incoming steamers. The contract is for daily service, except Sundays, for the transportation of not to exceed 500 lb. of mail a single trip each way, by a schedule satisfactory to the Postmaster General, the contractor to receive and deliver the mails at a convenient location in New Orleans.

Launching Airplanes With Catapults

Loening Amphibian Plane Successfully Launched in Preliminary Experiments in Catapulting Large Machines.

TESTS WERE recently carried out by the Navy in the catapulting of a large airplane from a ship at sea. The new device which was tested projects the airplane on the carriage by means of a high explosive gunpowder charge. The plane used in the tests was a Loening Amphibian with inverted Liberty engine. Never before had so large a plane been projected into the air by means of a catapult and the tests marked the opening of continued experiments along these lines. The plane took the air without untoward incident.

Culmination of Extensive Work

The launching of a Loening Amphibian plane from a catapult marks the culmination of extensive experimental work by officers of the Navy in developing catapults, since 1912. At this time, the idea of catapulting occurred to Capt. W. I. Chambers, U.S.N., and, with the cooperation of the Bureau of Ordnance and the Naval Gun Factory at the Washington Navy Yard, an air hoist, track and car were prepared. These were installed on the Santee dock at the Naval Academy just across the Severn River from the Naval Air Detachment. The first attempt at launching was made there, about August, 1912, by Lieut. T. G. Ellyson, U.S.N., pilot, but was unsuccessful. Analysis of the results indicated the changes necessary and alterations were made using the Gun Factory engineering and manufacturing facilities under the direction of Naval Constructor H. C. Richardson.

The next test was made from a barge at the Washington Navy Yard, with the tracks only about two feet clear of the water. With Lieutenant Ellyson again piloting, a hydroplane was successfully launched on Nov. 12, 1912, and the next month, again with Ellyson piloting, the first Navy flying boat was also successfully catapulted.

It was manifested by these tests that greater capacity was required and a new design was at once undertaken with Naval Constructor Richardson in charge in the Construction and Repair drafting room at the Washington Navy Yard. The structural work was done by the Construction and Repair shops and the engine details by the Gun Factory. This design was nearly completed, when, due to the establishment of the Naval Air Station at Pensacola, Fla., it was transferred, on the U.S.S. Mississippi, to Pensacola, early in 1914. The first catapult had a run of only about 30 ft., the new one about 110 ft. and was installed on a coal barge. In November, 1914, Lieutenant Bellinger made a successful flight from the barge in a flying boat. For a short while, catapulting was made a part of the course, but was found so simple that the personnel required to operate the catapult detracted so seriously from the more important station activities, that its use was greatly curtailed.

First Flight From Ship

Captain Mustin, then in command at Pensacola, obtained authority to install the catapult on the quarter deck of the U.S.S. North Carolina and he made the first flight from a ship underway. He also conceived the idea of elevated tracks on the quarter deck, utilizing the after turret as a turntable to transfer planes from storage to the catapult. Under his direction, the design staff at Pensacola developed the detailed plans of tracks and cars. Some of the work was done at Pensacola and most of the structural work at the Norfolk Navy Yard. In the meantime, a more powerful engine was developed and manufactured at the Washington Navy Yard under the supervision of Naval Constructor McEntee. Ultimately, in 1916, catapults were installed on the U.S.S. Seattle and the U.S.S. Huntington, with elevated tracks and R-6 seaplanes were frequently launched from both ships at sea.

However, at this stage, a successful method for stopping the catapult cars had not yet been satisfactorily worked out and it was the practice to let the cars go overboard with the plane, the cars being recovered, in a more or less damaged condition, by means of a tow line stowed on the car with one end attached to the ship. Although the elevated tracks could be folded, the operation was a major one and shortly after these ships were put on convoy duty, the tracks and planes were removed.

Langley Catapults

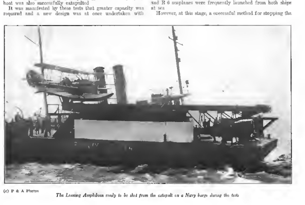
These catapults were installed on the U.S.S. Langley in 1920. In the meantime, the problem of the catapult brake had been solved and was tested on a barge at Pensacola. These brakes were installed on the U.S.S. Langley.

At Pensacola, under Captain Mustin, and later under Commander Richardson, Lieutenant Fellers, then a civilian chief draftsman, had much to do with the development of detail plans and engineering features of the design.

In 1919, it became evident that catapults were necessary for the operation of airplanes from battleships and the idea of a turntable catapult was suggested by Commander Whiting. As a result, the Naval Aircraft Factory was called upon to design a turntable catapult. At this time Commander Richardson was Chief Engineer at the Naval Aircraft Factory, and Lieutenant Fellers was assigned the duty of Project Engineer under his supervision. The first trials of this turntable catapult were successful. The first shot was fired on Oct. 21, 1921. Since then, through the cooperation of the Bureau of Construction and Repair and Ordnance, these catapults have been installed on twelve battleships and ten cruisers,—in all, 32 catapults on ships. One is used for training at the Naval Air Station, San Diego, and one at the Naval Aircraft Factory for training of catapult crews and pilots.

During the War, the Bureau of Ordnance obtained a fly-wheel catapult from the Sperry Gyroscope Co. This catapult was later transferred to Dahlgren, Va., for the Bureau of Ordnance aircraft experiments. About the end of 1921, the powder catapult was suggested by Lieutenant Commander Hamlet of the U.S. Coast Guard. At the request of the Bureau of Aeronautics, in January, 1922, through the cooperation of the Bureau of Ordnance, a successful catapult has been developed and two are now installed on battleships and others are in hand. In this work, Lieut. Comdr. E. F. Stone, U.S. Coast Guard, and C. F. Joansen of the Naval Gun Factory, have worked, together with officers of the Bureau of Ordnance.

Another catapult, the "Norden" combination hydraulic and fly-wheel type, is about perfected and will be installed on the aircraft carriers, Lexington and Saratoga. The turntable catapults were all built at the Philadelphia Navy Yard shops and the powder catapults at the Naval Gun Factory.



(c) P & A Photos

The Loening Amphibian ready to be shot from the catapult on a Navy barge during the tests

More Retort-Commercial

In the March 8 issue of AVIATION *was published some correspondence between the Decatur Aircraft Co. and Lieut. Col. Wm. G. Schauffler, Jr., regarding some statements made by the latter in Adventure Magazine on the subject of commercial flying schools. The correspondence is reopened below, Colonel Schauffler again addressing the Decatur Aircraft Co.*—EDITOR.

I take great pleasure in answering this letter in as complete detail as possible sending all correspondence when completed to Mr. Hoffman, Editor of *Adventure Magazine* with the request that it be published in full at the earliest possible date. The reason I am asking immediate publication, is to get this matter before the public while the whole Air Service question is being taken up by Congress.

One of the things that is absolutely needed in this country is Federal legislation which will prescribe laws governing the operation of aircraft, inspection of aircraft, training of pilots, the licensing of pilots, and the regular and complete physical examination of pilots.

No Federal laws of this kind exist at the present time. A few states have passed laws but these for the most part contradict each other so that a pilot flying from one state to another although obeying the laws of his home state would be breaking the laws of other states over which he was flying.

At the present time, except for these few states, there are no laws to prevent any "Tom, Dick or Harry" with practically no air training from buying a brand new plane or a second-hand rattletrap deathtrap patched together with a pair of pliers and a roll of hay wire, taking it out to a county fair or on just a plain barnstorming trip and carrying passengers.

No license is required of the pilot and nobody makes a regular inspection to see whether the plane is fit to fly, for there are no laws requiring such a license or inspection.

This "Gypsy" pilot, as he has been called, may get away with a few flights, maybe he will get away with several hundred, but sooner or later something will go wrong and the newspapers will be playing up another "AIR DISASTER." This has happened time and again, and the "crash records" of the past few years prove it.

All ships on the ocean and other waterways are licensed and given regular inspection. Under Federal laws, ships masters, pilots, engineers, radio men are licensed, so why in the name of common sense should the ships of the air, their pilots and their crews not be licensed under FEDERAL LAWS governing aviation.

Now let's take up your letter point by point, and I hope we can reach a mutual understanding.

The Army Air Service has, after careful consideration found that it takes AT LEAST 75 HOURS IN THE AIR in the Primary Course at Brooks Field to train a pilot to a point where he is considered qualified to be passed on to the Advanced Flying Course.

Seventy-five hours boiled down is 4,500 minutes. In addition to the 75 hours in the air, the Cadet Pilot receives 24 hours instruction on airplane motors, 25 hours of aerodynamics, 15 hours on airplane rigging, 10 hours on airplane instruments, 25 hours on aerial navigation, 25 hours of meteorology, 8 hours on parachutes, 35 hours of military sketching and map reading, 65 hours on theory of radio code and signals, 12 hours on aerial photography, and in addition to all of the above 100 hours of purely military subjects.

If the Cadet Pilot can pass this first Primary Course, he then receives 250 hours flying as follows: 125 hours transition to Service type planes from the training planes, 125 hours special training in either Pursuit, Attack, Bombardment or Observation Planes and 10 hours Aerial Gunnery.

Approximately 100 hours additional ground training is given in this course governing special branches of aviation, and 236 hours are spent on the following: Care and maintenance of Service planes, classification and identification of aircraft, organization and employment of Air Service, rifle range work, armament, flexible machine gun practice, elementary bombardment practice, observation, and military subjects.

I do not know how many hours or minutes you give in your actual flying course or in your ground course, but for the life of me I cannot see how you can afford to give the course in ship-building, rigging, motor overhaul and enough actual flying to make a man a pilot fit to fly any plane at any time in any weather — and that is what a first class pilot should be able to do. I should like very much to hear from you as to how many hours in the air and on the ground you give your students and on what kind of planes you train them.

Most of the civilian schools that I have known have charged $1.00 a minute IN THE AIR and the usual average has been about 400 minutes in the air with the ground work thrown in if the student wished it. I have based my figures of six to seven hundred dollars on the above, making a total of $400 plus the man's travel expenses to and from his home and the school, his board and lodging and entertainment over a period of at least two months. The average student at a flying school is no slow bird. Most of them are out for a good time, and I believe my figures are conservative.

You may charge only fifty cents a minute in the air, which brings the price to $200 for four hundred minutes, but four hundred minutes in the air is NOT ENOUGH to make a FIRST CLASS PILOT capable of flying any ship anywhere at any time. Again I repeat my statement that the young pilot who is allowed to fly by himself with even six to seven hundred minutes in the air "staggers through the air" and is not fit to be employed by any first class commercial operating company or with the Air Mail.

Now let's take up another point of your letter concerning the commercial pilots. In the first place in my letter to Mr. Becker, I made no such statement as you have attributed to me — your letter page 2, lines 5, 6, 7. Regarding the ability of commercial aviators to "stagger through the air," we wish to call your attention to several facts regarding this "staggering."

My statement was: "It will cost you about six to seven hundred dollars to just barely stagger around through the air."

No reference was made to the flying ability of any instructors. My hat is off to every pilot who is an instructor to a bunch of young pilots and would-be pilots and I am certainly glad to know you have old "Army trained" pilots on your staff of instructors and some of the old pre-war pilots. Right at this point let me ask you how many men you have on your payroll as instructors who have had ONLY the amount of training you give the average student in your school?

To go on to your next objection: "you also state that a graduate student is not fitted to take any kind of a job with a first-class commercial operating company or with the Air Mail."

I will admit there is a small mistake there. I should not have said "any kind of a job" for such a graduate if he was a good mechanic might get a ground job, but I am of the same belief that such a graduate with only a few hundred minutes to his credit in the air would have a mighty hard time obtaining a job with a first class commercial operating company or the Air Mail. I have got to be shown that is all. I believe you will find that most of the commercial operating companies and the Air Mail are employing old Army trained pilots and pre-war pilots, and very few of these have had less than 500 hours in the air. I have just called the Air Mail Service Headquarters on the 'phone and they tell me they will not even consider a man for a pilot unless he has had AT LEAST 500 hours in the air and that they have a preferred waiting list of over 500 men with more hours than that to their credit.

One other point just here. The Air Mail is expanding at a tremendous rate at the present time and a lot of sub-contracts are being "farmed out." It is barely possible that a few inexperienced men will slip into jobs as Air Mail pilots under these sub-contractors, but if they do, I predict they will not live very long.

In regard to the 1923 St. Louis Air Meet figures, I do not feel that your figures prove anything at all. You gave no figures regarding kind of weather flown in, the landing speed and types of the Army planes and landing speed and types of the commercial planes. At that — the majority of the commercial pilots at St. Louis were "Army trained." The Army planes were probably equipped with light racing tires, and the commercial planes, I imagine, were equipped with regular commercial tires or even oversized tires.

In regard to my training. I started flying in 1915 at San Diego

and then kept on with my training at the Atlantic Coast Aeronautical Station. My instructors were Vic Carlstrom, Walter Lees, Victor Vernon and several other civilian pilots. At that time, there were no Army trained pilots available for instruction purposes to civilians.

I received Aero Club Expert License No. 72 and was turned loose in the air for solo flight at 375 minutes, but even in those days when pilots were scarce we weren't getting jobs thrown at our heads when we received our Aero Club license for making a solo flight. Even when we went into the Army in November 1916, we were not allowed to "solo" until we had had at least 1000 minutes with an instructor at Newport News and another 500 minutes under Eddie Stinson at Kelly Field No. 1 (when Kelly Field was a small strip of landing field cut through the cultivated and uncultivated farm land outside of San Antonio and when Kelly Field consisted of six tent hangars and we lived in 10 x 12 tents.

After flying in France two years at the front, then a year as Operations Officer for the Mexican Border Patrol and quite a bit of flying to my credit, all-in-all, I feel that I know a little about this flying business, but I have not yet reached the point where I can believe a man can obtain enough training in a few hundred minutes to qualify himself as a competent commercial pilot.

You next bring up the point that I have not told Mr. Booker he would have to pass "one of the stiffest examinations ever given before he is even considered fit to take the Cadet Course at Brooks Field". I beg to differ with you on two points concerning your statement.

I sent Mr. Booker complete information concerning this course as issued in pamphlet form by the Office Chief of Air Service, Washington, D. C. This information covered EVERYTHING connected with the prescribed course and informed him that instead of having to pay for his training he would be paid $75 a month, clothed and fed by the Government during his training period.

I disagree with you also on the point that the examination is the "stiffest ever given". Any high school graduate can pass the mental examination. In fact, the entire educational examination may be OMITTED if the applicant presents documentary evidence of graduation from a high school, a private preparatory school, or a recognized college or university, provided he has not been graduated from such a school more than two years immediately preceding his appearance before the Examining Board.

The physical examination is the Air Service 609 that every officer in the Air Service must pass every six months. This examination is to determine a man's physical fitness to fly, and no officer in the Air Service is allowed to handle a plane by himself unless he can successfully pass the examination.

Extensive studies have been made by medical experts covering this matter and their recommendations have been adopted by the Army Air Service. I might add that the Air Service has spent and is spending a great deal of time and money in aeronautical research and conducts a Flight Surgeons School at Mitchel Field, L. I.

As I have stated before there are no Federal Laws at the present time which require a physical examination of an air pilot. This should be remedied at once by the passing of suitable laws by Congress covering all phases of aviation.

I do not agree entirely with you that "the conditions surrounding commercial aviation are absolutely different and require a different type of pilot than does the Army Air Service."

The Army pilot of today is not the Army pilot of a few years ago. During the rush of war flying training there was not time to teach the pilot to be a Master Airplane Mechanic in addition to his flying duties. The pilot's business was to fly the plane and conquer the enemy and there were plenty of other men to take care of the planes. Even at that time there were a large number of pilots who could repair almost anything that was physically possible for one man to handle.

The present graduate of the Primary and Advanced courses at Kelly Field is a pretty able mechanic and I believe can hold his own with the majority of commercial pilots when it comes to repairs, etc. Also he has had a lot of air experience and I believe most of these graduates have had enough engine trouble over rough country—there is lots of rough country around Kelly Field—to enable them to handle a plane in and out of small fields.

I agree that commercial flying conditions are hard. That is the reason I believe the young pilot should be given every chance to learn to meet these conditions under the most favorable circumstances at a school where he can obtain the greatest amount of training at the least possible expense to himself.

In regard to "the barnstormer with his six hundred dollar OX5 Jennie and his repair kit consisting of pliers, screw driver and a roll of bay wire that put aviation on the map in the United States", I again disagree with you.

The "Gypsy" pilot did more to hurt aviation in the United States than any other one agency. Most of these men killed themselves and a great number of the men they taught or attempted to teach to fly "went West" with them. They certainly put aviation "on the map" in the United States, but it was a map of fatalities or "crash chart" as it is sometimes called.

However, my hat is off to each and everyone of them. They were doing the best they could with the best planes and equipment they could obtain. My contention is that the whole nation is to blame for such conditions existing and nothing has been done by Congress to change these conditions. Congress has the power to enact suitable Federal Laws covering aeronautics. It is up to the people of the United States to demand that these laws be passed. The United States is practically the only civilized nation in the world in which there are no organized Federal Laws governing the various phases of aviation.

I receive a great many requests for information concerning flying training. The majority of these requests come from young men who have no money to waste on their training. They wish to obtain the best and greatest amount of flying training possible for the smallest expenditure possible. All of these men wish to become the commercial pilots of the future and to capitalize their training along these lines. To these I recommend the Cadet Course offered by the Army Air Service for the reasons I have mentioned previously.

Once in a while, however, I receive a request for information concerning training from a man or boy who evidently has plenty of money. These requests come from those who wish to learn to fly just for the sport of it. They do not expect to capitalize their training and they can afford to spend whatever amount is necessary to learn to fly. I frankly tell these men about the Cadet Course and the amount of time in the air required by the Army Air Service of a student in the Primary Course (75 hours) and then I refer them to a civilian school that I know will train them well, PROVIDED THEY PAY FOR ENOUGH TIME IN THE AIR.

I wish to thank you for the opportunity you have given me of debating it with you. Let's hear what the other fellows have to say on the subject.

W. G. SCHAUFFLER JR.

Decatur Replies

We are in receipt of your favor of February 16 and have noted carefully what you have to say in defense of your article and will try to take up your letter in the order in which it is written so that you may intelligently understand our views on the matter.

There is no doubt that some kind of Federal legislation regarding the operation of aircraft and the licensing of pilots is necessary but if the government supervision in this matter is on a par with its supervision in other matters, the commercial companies of America would soon be legislated out of business. This is a feeling we believe to be universal throughout the commercial game. We ourselves recognize the need of this legislation provided it is intelligently interpreted.

We do not agree with you concerning what you say regarding the Army training at Brooks or at Kelly. In the first place, ten hours dual instruction is required by the Army but the writer can name off-hand at least a half a dozen pilots who have soloed several hours under this requirement.

You state in your letter that you do not understand how we can afford to give a complete course in aviation. We might draw your attention to the fact that the commercial schools of aviation last year trained and turned out a great many more pilots than did the Army Air Service. We do not limit the hours of dual instruction. In other words, we give a man actual flying instruction until he is qualified to fly. There is no man who can, off-hand, say how many hours a student needs before he is capable of operating an airplane by himself, as one man may grasp the idea and interpret his instruction a great deal more intelligently than another student. You say that civilian schools that you know of charge $1 a minute in the air. We also know of some schools that charged this back in 1919, 1920 and 1921 but we do not know of an aviation school in America today that has a charge to exceed $250. We ourselves guarantee to teach a man to fly for $150.

Your comparison in the flying ability between the instructor and the student does not seem to us to be very well taken. It would be just as fair to ask Harvard University how many they employed as instructors that did not have any more education than the students they were to teach as it would be to ask a commercial company whether or not their instructors had any more flying instruction or training than the students they were teaching to fly. It is a foregone conclusion that unless an instructor had a great deal more experience than the student he would not be qualified as an instructor.

You say in your next paragraph, page 4, that the Air Mail is employing Army trained pilots. There is no reason why they should not and the reason why they should is very simple. The Air Mail flies DH planes with Liberty motors installed. Off-hand we do not know of any commercial company in the country that is operating DH's and Liberty motors and the Air Mail requires its men to have at least 75 hours on DH's, thus eliminating automatically a lot of very fine commercial pilots from holding these positions. We personally know of one instance where one of the oldest of the Army trained pilots, who immediately after the war turned his activities to commercial aviation and is considered one of America's best pilots, was turned down by the Air Mail, not through any lack of ability but due to the fact that he did not have 75 hours DH time. You also state that there will be a lot of inexperienced men slip into the Air Mail positions under the sub-contracts that have been let. Your argument seems to be that unless a man is Army trained he is inexperienced. The writer holds an Army Air Service pilot's license and served in the United States Navy Air Force but he knows of several commercial pilots who were trained by neither Service whom he considers to be his superior as pilots in every respect. The mere fact that a man is not Army trained does not mean that he is inexperienced and there is no logic in the argument that the pilot who trained men for the Army can not train men fully as well if he is on the payroll of a commercial school.

Regarding the figures that we gave on the St. Louis Air Meet, we can not see where your question regarding the weather makes any material difference as both the Army pilots and the commercial pilots were flying under the same conditions as far as weather was concerned and we might also draw your attention to the fact that it is somewhat easier for a pilot to set a ship down safely in rough country with a pair of 750 x 125 wheels on a landing gear and not "nose" over than it is for a man to set down an under-powered ship with small 26 x 4 tires and you will find, upon investigation, that at least 80% of the commercial airplanes operated in America today are equipped with a lighter type.

We also wish to make what we believe to be an honest correction. When you state that you were at Kelly Field in November, 1916 taking instruction five hundred minutes under Eddie Stinson, you designate this as Kelly Field No. 1. This was not in active operation until 1917 and the first activities at San Antonio were from the old Remount Field at Fort Sam Houston. We also have some men here who can date back with the first Army flying.

You state that you do not agree that the conditions surrounding commercial aviation are different from those surrounding the Army. We cannot understand why you feel to see this, as every hangar in the Army today has its crew and crew chief whose duty it is to keep the ships up to Army specifications in the pink of condition and in flying shape at all times. The average commercial pilot depends absolutely on his own efforts to keep his ship in shape. When you say that you do not see that the flying conditions are different, we wish to ask you the following questions: Is it your honest opinion that an Army pilot can take a standard type of Army training ship such as a JN4H and follow a commercial pilot in and out of the small fields that the commercial pilot will put an OX5 Standard in and out of and still not crack up the Army Jenny? We know the above test to be impossible for the commercial ship, with its low landing speed and pilot to whom these fields have become necessary owing to the fact that he must land as close to towns from which to carry his passengers, as it is possible to land, can be flown safely in and out of fields which it is impossible to fly the Hisso Jenny in and out of. We gladly admit and recognize that the Army pilot of today is not the Army pilot of a few years ago but he is not the all around mechanic nor is he capable of doing his own repair work as is the experienced barnstormer. This is no fault of the Army pilot but is simply due to the fact that he does not have to do it nor does he.

There is no doubt your paragraph in which you state that the "Gypsy" pilot has done more to hurt aviation than any other agent, carries more injustice than any one we have ever heard regarding aviation. We can name for you dozens of "Gypsy" flyers who have put in more hours in the

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last two years barnstorming than any Army pilot you can name in America and they put these hours in safely and without injuring anyone

This company over a period of active flying since 1919 has never had a serious wreck of any description nor caused the slightest injury to any person whatsoever and the actual flying hours are a great many more per year by each pilot than for the same number of Army pilots any place in the country

We can only attribute the statement which you have made regarding these men, who have financed this business without any help whatsoever from the Government of United States and who have done more to acquaint the public with the airplane than all the money wasted and spent by the Government put together to an absolute ignorance of your subject.

We wish to draw your attention to your own statement where you say that you yourself were forced to take five hundred minutes of instruction from Eddie Stinson who happens to be one of the oldest commercial pilots of America and who regardless of the fact that he was not Army trained was not considered incompetent but was rather considered to be good enough that you admit he had charge of giving you five hundred minutes instruction You yourself might investigate just how many hours Mr Stinson has put in as a barnstormer and then decide whether you would consider that he has been one of the great detriments to aviation in the United States While we are drawing your attention to him we would also mention Billy Kenke of Oklahoma Okla W. S. Thompson, now in Florida Pop Keller and Elmer Partridge of Ashburn Field Chicago Matile Laird who now builds the Laird at Chicago Tony Yeskey of the Yeskey Aircraft Corporation who operates the Checkerboard Field at Chicago and many others too numerous to name, all of whom are strictly commercial operators and who have all been flying since there was an Army Air Service to enumerate anything and none of whom has been considered a very great detriment to American aviation

DECATUR AIRCRAFT COMPANY

Government Aid Requested for Swedish Air Line

Aktiebolaget Aerotransport, an all-Swedish air traffic company, which has been receiving a government subsidy, has recently requested the government to grant a concession and subsidy in order to operate a commercial air route between Stockholm and Stettin.

It is believed that a Swedish government subsidy would increase the traffic at the aerial port of Stockholm to a considerable extent. Maintenance expenses for that port, it is pointed out, would be balanced by income from increased foreign traffic. The Swedish government is financially interested in the Aerotransport company, which employs exclusively Swedish pilots and mechanics, numbering ten and forty, respectively. It is predicted that the requested subsidy will be granted.

The Philadelphia Air Transport Meeting

An "Aero-Transportation" meeting, sponsored by the Engineers Club of Philadelphia, was held on Tuesday, March 16. The meeting, which was held in the Bellevue-Stratford Hotel, Philadelphia, was divided into two sessions, the first commencing at 3:00 p.m. and the second, a dinner meeting, at 7:30 p.m.

At the afternoon session, which was attended by fifty or sixty persons, the speakers were: C. M. Keys, president of the Curtiss company; Col. Paul Henderson, general manager of National Air Transport, Inc.; William B. Stout, of the Air Line Division of the Ford Motor Company and Capt. George W. Steele, U.S.N., of the Naval Air Station at Lakehurst, N. J. Mr. Keys, who opened the meeting, discussed the "Present and Future of American and Foreign Air Service". Mr. Keys spoke of the air lines which are being developed at the present time with particular regard to the National Air Transport. He also discussed the activities of the individual air operators who are doing so much to develop commercial air work throughout the country.

Mr. Keys was followed by Col. Henderson. He spoke on the subject of "Airways and Airdromes" and discussed, in a very interesting manner, the ground equipment of the Air Mail service and pointed out how vitally important ground equipment is to the successful operation of an air line. He further emphasized the importance of municipal airports to the growth of air transportation.

William B. Stout, who followed, discussed "Heavier-Than-Air Craft" in general terms. He laid especial emphasis on the importance of engine development to airplane design and the urgent need for drastic reductions in engine prices. Mr. Stout declared that it was his opinion that while the government should be responsible for the provision of certain ground requisites of air transportation, the actual regulation of flying might well be left to the insurance companies who would, in the interests of safety and their own financial success, encourage the development of only the safest equipment and the employment of the most reliable pilots.

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The afternoon session was brought to a close when Captain Steele read a very interesting paper on Airships, discussing the early Zeppelins and concluding with a discourse on the Shenandoah and the Los Angeles and the new ships which it is hoped are shortly to be built by the Navy

At the dinner in the evening many interesting personages in the aeronautical field were present, among the 300 to 350 guests who sat down to dinner in the large ball room of the Bellevue-Stratford hotel Among those at the Speakers' table were: Maj Gen Sir Sefton Brancker, Director of Civil Aviation in the British Air Ministry; the Hon J Walter Drake, Assistant Secretary of Commerce; Charles C Gove; Col Paul Henderson, C M Keys, William P McCracken, Jr.; Capt. George W Steele, U.S.N.; William B Stout and Maj Howard F Wehrle.

After Mr Gove had spoken regarding the activities of the Air Mail Service and had expressed the regrets of the Hon Harry S New, Postmaster General, at not being present, Hollinshead N Taylor, who is chairman of the Aviation Committee of the Sesqui-Centennial, discussed, for a few moments, the air activities of this important function, followed by Major Wehrle, who is in charge of the National Air Races to be held at Philadelphia this year, who discussed these races.

Mr Drake, addressing the meeting, discussed, with extreme interest, the attitude of the Department of Commerce toward the prospects of its being in charge of the regulation of commercial flying From Mr Drake's remarks nothing but ease can be entertained regarding the conservative and cooperative manner in which the Department of Commerce will attack these new problems

Sir Sefton Brancker, when called upon by the chairman to speak, discussed the air transportation activities carried on under subsidy by the British. He explained how the British Government regarded air transport as a vitally important feature in the development of the Empire and, with this in mind had decided to carry on a full-scale experiment in air transportation, for such is the light in which the London-Continental airways are viewed by the Government. He concluded a very interesting discourse by paying a tribute to American operations both of the Air Mail and of the individual operators throughout the country which operations have considerably impressed him Among the final speakers of the evening was William P McCracken who discussed air legislation from its first conception to the present time.

One of the most important features of the evening session was the display of a working map of the United States, showing the transcontinental Air Mail route and the subsidiary routes. The working of the Air Mail route was demonstrated by the movement of small lights from coast to coast and by the changing of time and the day and night representations which were depicted in the working model.

New Planes Delivered By Air

A Douglas C-1 Transport airplane from the 2nd Bombardment Group left Langley Field, Va., for Mitchel Field, L I, New York, at 1 30 p m, March 1, on the first leg of a flight across the continent to Santa Monica, Calif Capt. Floyd E Galloway, A S., was in command of the plane with Lieut. Edwin R. McReynolds, A S, as pilot and Tech. Serg Harry Glascock, 59th Service Squadron, as mechanic. At Mitchel Field the transport will pick up two officer pilots and then proceed to Bolling Field, Washington, D.C., where it will take one additional officer pilot, making a total of five officers and one enlisted mechanic who will make the flight to the Pacific Coast

The purpose of this flight is to transport to the Pacific Coast in the most economical and expeditious manner, four Air Service pilots, where they will, at the Douglas Airplane Factory, accept delivery of four new Douglas X-O2 observation planes, and fly them to their respective home stations. It has been estimated that several thousand dollars will be saved to the Government by delivering these new airplanes to their respective stations by air rather than by shipping them by rail and this method also has the additional advantage of giving the pilots valuable experience in piloting the planes across the continent.

AIRPORTS AND AIRWAYS

Detroit News

By L. S. Gillette

Every aviation-minded citizen in town turned out on March 6 to give Gen. "Billy" Mitchell the greatest reception he has received since he left the Army. He was met at the station by a large force of the Detroit Flying Club and numerous prominent city officials. A parade of eighteen limousines, loaned by several of the automobile companies, escorted "Billy" on his tour of inspection.

At the flying fields, there has been considerable activity. Eddie Stinson has been busy demonstrating his new plane at Selfridge Field and last Friday he flew the plane to Chicago to meet several prominent people who are considering purchasing several of this type. Verville has been also busy during the week carrying prospective purchasers for his new folding wing job and making other demonstrations. The Hunt Aviation Co. are seeking to sell two of their Standards to make room for some planes of newer type. Virgil Simmons now has his planes stored at Packard Field and is starting to look them over for early Spring operation. He has been required to move from his previous place of operations, Eastwood Field, on account of the property being taken over for sub-division by a real estate concern. Simmons will use Packard Field this year.

Outside of the flying fields there were two other events of importance during the week. At the regular meeting of the Society of Automotive Engineers, Lieut. Cyrus Bettis of the First Pursuit Group, Selfridge Field and winner of the 1925 Pulitzer Race, delivered a paper entitled "Aircraft Engine Operation and Maintenance". In his talk, before approximately 100 members and guests, Bettis pointed out that greater care must be taken in the periodic inspection of engine accessories, oil and fuel lines and engine controls in order to reduce the number of forced landings from engine failure. His talk was accompanied by lantern slides.

Lieut. H. H. Ogden one of the Round-the-World fliers and Capt. C. H. Biddlecombe of the British Air Ministry were the principal speakers at the Thursday luncheon of the Detroit Flying Club.

Mechanic Gets $40,000

Commander Franco of the Plus Ultra and his fellow airmen sailed from Buenos Aires for Spain on March 11, on board the Argentine Cruiser Buenos Aires for Huelva, Spain. They were given an enthusiastic send-off.

Just before the airmen departed Commander Franco formally presented the Plus Ultra to the Argentine nation at a function which was marked by memorable scenes.

The lowest ranking member of the crew of the seaplane, Plus Ultra, was Pablo Rada, the mechanician. He embarked

with the other members of the crew of the flying boat, a comparatively wealthy man His countrymen in Argentina collected and made up for him a purse of about $40,000. This sum, in Spain, will permit Rada and his family to live in comparative ease.

Awaiting him in Spain are other gifts, including the Lahor gold medal, which carries with it a pension and the right of his children to receive free tuition in the schools

Flying Fishermen

C. H. Rhodes of Virginia, Minn., has been kind enough to send us in some photographs which, too blurred to reproduce, show a most splendid catch of big lake trout, procured by the winter flying fishermen of Minnesota Mr. Rhodes uses a C-6 Standard which he has fitted with skis. He flies passengers from Elye, Minn., in to Snow Bank Lake. The flight takes only 30 min. and, as there are no roads into the lake, it takes two days of strenuous snowshoeing to get there by the old fashion method of travel Mr. Rhodes charges each of his two passengers $17.50 and, so far this season, he has made fifteen trips. The fishing is done through holes in the ice and the trout weigh betwen 4 and 12 lb. each.

V. F. W. Aviation Post

An aviation post of the Veterans of Foreign Wars of the United States will be formally installed in New York in the near future, under the personal direction of Joseph C. Thomson, New York State Commander of the organization. At the present time, according to Mr. Thomson, there are a number of fliers included in the membership of the 150 greater New York posts of the organization but it is the belief of the Veterans of Foreign Wars officials that there are enough fliers who have seen service overseas to permit the formation of an exclusively "aero" post

Father John J. Sullivan, Chaplain of the New York State Department of the Veterans of Foreign Wars, who was chaplain of the Air Service overseas and affectionately known to every aviator as the "flying chaplain" is taking an active interest in the plans for the formation of the Aviation Post and it is anticipated that he will be one of the charter members.

Applications for charter membership in the proposed Aviation post may be obtained from Joseph C. Thomson, New York State Commander, Veterans of Foreign Wars, 32 Union Square, New York City.

Los Angeles News

By Pat MacDonald

Los Angeles now has another airport opening up on aviation row, Western Ave., known as the Short Airport Stanley Short is the owner and George Miller is in charge of flying activities. At the present time they are using three Jennies

Ernie Longbrake is building an airplane of his own design An OX5 three place design with steel tubular fuselage, etc

The Aero Corp. of California, formerly Burdett Airport, has been doing a very good business during the past two months, now having thirty-two students and having soloed four students in the past week. These were R. A. Edwards, G. A. Coxe, W. Natte and Geo. Hobart Some new students are: R. L. Sydel of Bell, Cal.; Thos. B. Riley, Los Angeles; Dr. T. H. Costenhader, Los Angeles; Pete Gibson, Bell, Cal.; Lee Willey, La Habra, Cal.; O. Kerkoff, Los Angeles; Geo. Moyer, Los Angeles; M. Moose, Los Angeles; H. Schott, Los Angeles.

Mr. Spence of the Spence Airplane Photos, who does all his flying from this field, left recently for Mexico on a two weeks job for the Fairchild Camera concern

Paul Whittier has also returned from his trip through the East, where he had the opportunity of flying a number of late planes He returned by way of Central America, stopping off for a month in Costa Rica He says he is glad to be back in the sunshine where he can paddle around through the atmosphere in his shirt sleeves, comfortably. The Aero Corp. shops are busy rebuilding several planes at the present time They just purchased a new OXX6 Standard from the Crawford Airplane Co. for use in short passenger hops.

The Rogers Airport is doing a rushing business with four Standards, carrying passengers at the rate of $1.00 each They now have sixteen students, having soloed several recently They are also doing a good business in aerial photography.

The Dycer Airport was converted to a good alighting field for seaplanes for a couple of weeks during February, but, since the rain is over, it has again become a nice respectable landing field for Jennies, Standards, Tommies and a resting place for one Junkers monoplane

The Black Cats are still doing a lot of stunt work and make the Aero Corp. field their headquarters Last Sunday they put on an exhibition with plane changes, etc., over the races at Ascot Park where Ben Macdougall raced Next Sunday they are putting on an exhibition for the International Newsreel

United States Air Forces

New Construction Work at the San Antonio Depot

The construction of a new Paint and Dope House for the Engineering Department of the San Antonio Air Intermediate Depot, Texas, having been approved, the contract was let by the Constructing Quartermaster of Fort Sam Houston, and the work is now under way This will be a steel hangar 200x110x20 ft., affording ample room for the extensive operations required in the doping of airplane fabric, etc., and will be a most welcome improvement, the old building housing this activity being so constructed and in such condition as to impair efficient production in this respect.

The headquarters office has been rearranged and partitioned off in such a way as to add materially to the efficiency of the administrative work of the Depot

Flying Through the Southern Islands

A very interesting flight through the Southern Islands was recently made by Capt. L. B. Jacobs, Lieuts. J. W. Monohan, Guy Kirksey, W. K. Burgess, Master Sgt. R. E. Eisman and Staff Sgt. C. E. Wiggs Three Douglas Cruisers were used and little trouble was experienced Visits were made to Romblon, Capiz, Iloilo, Bacolod, Bais, Zamboanga, Jolo, Cotabato, Camp Keithley, Cagayan, Lake Lanao (2300 ft. above sea level), Surigao, Cebu, Manto, Legaspi, Tacloban and Corregidor It is contemplated making several of these trips through the Philippine Archipelago this dry season. On the return from Mindanao, Major Fletcher of Moro Service fame, accompanied Lieut. Burgess He is an officer of 26 years' service, most of which has been spent in the Moro Country In addition, he is a great Air Service enthusiast and an excellent traveling companion

The aerial jaunt mentioned above consumed 15 days

Army Air Orders

Maj. Sumpter Smith, A.S. Res., Maj. William D. Tipton, A.S. Res., Capts. Charles T. Phillips, A.S. and Ralph H. Wooten, A.S., appointed to board, to meet in Washington for the purpose of recommending a policy of replacement of airplanes for Nat. Guard.

Sec. Lieut. Charles H. Valentine, A.S., transferred to Cav. Lieutenant Valentine is relieved from duty with the Sec. Div. and assigned to First Div., Fort Clark.

First Lieut. John P. Temple, A.S., Langley Field, to Rose Field.

First Lieut. Ernest W. Dichman, A.S., Kelly Field, to McCook Field.

Sec. Lieut. Milton M. Murphy, A.S., Brooks Field, to Pope Field.

Following officers A.S., relieved from duty A.S. Prim. Fly.

Sch, Brooks Field and will report to the Com. A. S Adv. Fly Sch., Kelly Field: First Lieut. James C Shively, Sec Lieut Wilfred J. Paul.

Resignation by First Lieut. Eugene Luther Vidal, A.S., of his commission, accepted

First Lieut. Walter Miller, A S, Crissy Field, to Kelly Field.

Sec. Lieut. Wiley T. Moore, A S, relieved from further duty and training at A S Prim Fly Sch, Brooks Field and attached with Sec Div. Lieutenant Moore will report in person to Com. Gen., Sec. Div, Fort Sam Houston.

Staff Serg. Jack Hampton, A S., Mitchel Field, now at Parsons, Va, temp duty, will proceed upon completion of such duty, to Bolling Field and await air transportation to Mitchel Field.

Sec. Lieut. Welhorn Barton Griffith, jr., A S, transferred to Inf. Lieutenant Griffith is relieved from present duties with Sec Div, and will report to Com Gen., for assignment to org. of Inf., Fort Sam Houston

Following officers designated as students at Army War Col.: Lieut Col. Ira F. Fraval, Off Ch A S, Washington, Maj. John B. Brooks, 9th Obs Gr Head, Mitchel Field and Maj. Earl L. Naiden, asst com, A S Tact. Sch., Langley Field.

First Lieut Frank M. McKee, A S, Norton Field, to Walter Reed Hosp, Washington, for observation and treatment.

Sec Lieut Robert R. Selway, jr, A S., A S Adv. Fly. Sch, Kelly Field, to Scott Field.

First Lieut Reuben C Moffatt, A S., McCook Field, to Walter Reed Gen. Hosp., Washington, for observation and treatment

First Lieut Louis C. Simon, jr, A S, Selfridge Field, to Walter Reed Gen. Hosp., Washington, for observation and treatment.

First Lieut Edwin Johnson, A.S, Mitchel Field, to Maxwell Field.

Sec. Lieut Nathaniel Claiborne Hale, A.S, transferred to Coast Art. Corps.

Following officers of A S, relieved from assignment and duty as students at A S Adv Fly Sch, Kelly Field, and will report to Com Off that station: First Lieut. Ralph F. Stearley (Cav.), Sec. Lieuts Arthur L Bump, jr, Herbert W. Anderson (Coast Art.) and Howard M. Turner.

Following officers, A S, relieved from assignment and duty as students at A S Adv Fly Sch, Kelly Field, and will proceed to station specified: Sec Lieuts. Donald F Fritch (Field Art.), Mitchel Field, Raymond E. Culbertson (Field Art.) Mitchel Field, Leonard H. Rodieck, Selfridge Field, William L. Cornelius (Field Art.), Selfridge Field.

Following officers, A S, placed on detached officers' list to take effect upon his arrival at Washington Barracks: Lieut. Col. Ira F. Fravel, Maj. John B. Brooks and Earl L. Naiden.

First Lieut. Eugene C. Batten, A S, McCook Field, to Walter Reed Gen Hosp, Washington, for treatment and observation

Navy Air Orders

Lieut Comdr. Charles E. Rosendahl det Nav. Air Sta., Lakehurst to U.S.S. Los Angeles.

Lieut. Louis Iverson (MC) det Nav. Trang. Sta., Great Lakes, to Naval A. Sta., Pensacola.

Lieut. Leon C Frost (DC) det Nav Air Sta, San Diego, to Nav. Trng Sta., N O B, Hampton Roads.

Lieut John C Wood (SC) det. Nav A. Sta, Pensacola, to Obs and treat., Nav. Hosp., Washington.

Lieut Raymond D. Mac Cart (CC) det Nav. Aircf Fact., Navy Yard, Phila., to Inspr, Nav. Aircf., Curtiss Airplane Co, Buffalo

Lieut (jg) Ralph H Wishbard det Nav A Sta., Pensacola, to U.S.S. Childs.

Capt. Frank B Upham det com. U.S.S. Tennessee, to duty Comdt., Nav. A Sta, Pensacola

Lieut Arthur W Radford det. VO sqdns, 1 (U.S.S. Colorado) Aircf Sqdns, Battle Flt., to Bu. Nav.

Lieut Clifton A. F. Sprague det Nav. A. Sta, Anacostia, to Nav. A. Sta, N.O.B, Hampton Roads.

PUBLISHER'S NEWS LETTER

Perhaps no investigation that AVIATION has ever undertaken has ever brought such an amazing result as the poll of the pilots and aircraft operators of the United States. Requests were sent to about fourteen hundred different names and to date there have been received three hundred and forty-four replies; the largest response ever made to such an inquiry. These pilots report that they have flown a total of 6,823,730 miles in 1925. Such a startling total from only a quarter of the pilots that we believe flew in 1925 leads to the inevitable conclusion that when the poll is complete that it will be evident that flying in the United States is not the poor backward art that the public has been led to believe it to be, but instead, here in the United States there is more flying than anywhere else in the world.

* * * *

The trouble with American aviation has been the complete absence of a spirit of cooperation and the prominence of the individualism that appears to be one of the outstanding qualities of airmen. The letters that have been received regarding regulation has shown beyond question that such thinking as has been done had been based either on selfish and narrow considerations or a very obvious lack of knowledge of the broad and fundamental principles of control that experience has shown in other fields. The one thing needed, it seems to an intensely interested observer, is leadership. Without this, the pilots and operators cannot expect to have their policies directed along sound lines. This government is not a pure Democracy where every man can have his opinion affect the trend of legislation. We leave the making of laws to our elected representatives and rely on them to do our thinking for us. It is true that they are responsive to the public will, but when this is uncertain or has conflicting claims, the legislator cannot be blamed for doing what he considers to be the best course for the public at large.

If the pilots who flew nearly seven million miles would make their desires known clearly, it is certain that their views would be listened to with the greatest interest. This total mileage flown by commercial airmen is three times the distance flown by the Air Mail and eight times the years' total for England's Imperial Airways. When the reports are received and tabulated from many more the grand total is certain to exceed ten million miles. And yet, the public will not believe that we are not backward in commercial aviation. The reason is perfectly clear. Abroad, the emphasis is placed on passenger traffic. Every person who flies a few hundred miles in one of the luxurious air liners becomes a walking advertisement. He or she wants everyone to know it. Without investigating the purposes behind European air lines, they immediately jump to the conclusion that American inventive genius and skill are not comparable to similar foreign ability. They will not go into raptures over the commercial pilot in their home town that has been carrying on straight commercial flying operations since the war. The eulogistic praise is, characteristically, given to the line that carries them with government assistance and subsidy for a beautiful trip while they are pleasure seeking in Europe. It is time that the commercial pilots and operators of this country are given the credit due them and AVIATION will with the aid of the pilots spread the good news.

* * * *

With the opening of the new air lines this summer which will cover three thousand miles at least twice a day, the mileage of American aircraft will undoubtedly lead the world if not equal or exceed the total amount of flying done in all the other countries. AVIATION has several times in the past ten years' started to investigate conditions that it was believed were not receiving correct treatment. When the facts were brought out public opinion changed, not because the public is interested in a trade paper but because the leaders of aeronautical thought have had a new set of facts brought to their attention. By presenting the totals of the amount of flying done by the commercial pilots it is hoped that public opinion will not continue to belittle our aerial activities but will come to think of the pilot who is quietly making his living flying and the fixed base operator who is also carrying on the distribution of aircraft and accessories as the hopeful beginnings of a country wide development of aviation.

* * * *

From time to time AVIATION will publish lists of pilots and companies giving the totals of the flying done. In this way corrections may be made, a more accurate result secured and an interest aroused in this most important effort. We urge every airman to keep accurate records of his flying and to send us his mileage. It will be added to the ever growing total and made available to the public. Corrections will also be welcome. In such a large undertaking errors will certainly be made at first but there is no more certain way to locate these than by publicity. Whatever may be the ultimate figure of the poll, enough has been learned already to make it a pleasure to point with pride to the accomplishments of the pilots whose work has been done quietly and without great blowing of trumpets. With 6,832,730 miles as a start, the finish should be an astonishing record.—L.D.G.

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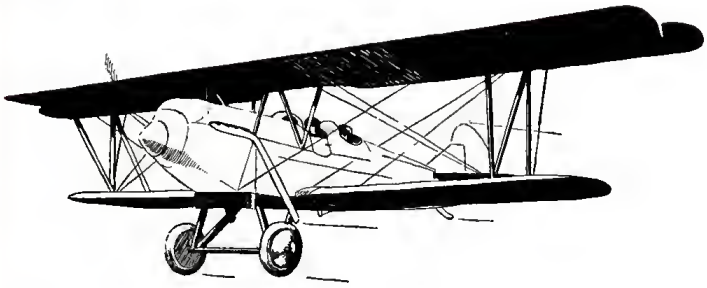

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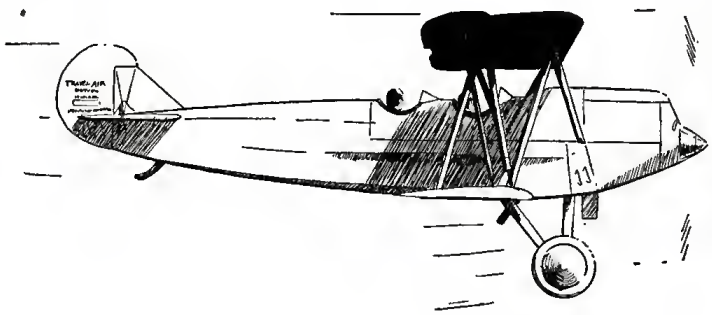

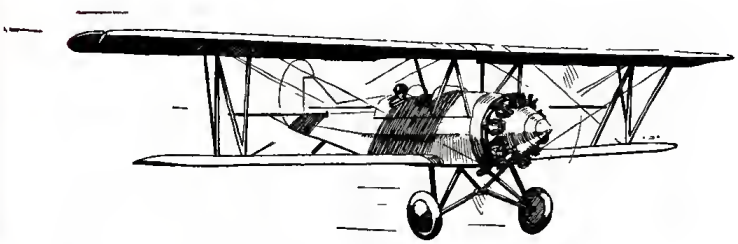

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